

I.—NEW ENGLAND SPIDERS OF THE FAMILY THERIDIIDÆ.

BY J. H. EMERTON.

OF the 134 species here described, 89 species are from Eastern Massachusetts, collected in Boston and the towns west and south of it, in Lynn, Salem, Beverly and the adjoining towns. In this neighborhood I collected for several years at all seasons, so that this number probably includes nearly all the common and larger species, but of the smaller spiders, *Ceratinella*, *Lophocarenum*, *Tmeticus* and *Microneta*, new kinds are found in almost every new locality explored, and it is probable that twice as many species of this family will sooner or later be found here. Farther east I have spiders from Portland and Eastport, Maine, and farther west from Mt. Tom in Holyoke, Mass., and Albany, N. Y., nearly all of them the same species as found in Eastern Massachusetts. Farther north I have a few from Montreal, Canada, and 43 species from the White Mountains, N. H., where I made large collections in the summers of 1874 and 1877. Of these, 23 species have not been found elsewhere in New England. They nearly all belong to the smaller genera and live in the damp moss on the slopes of the higher mountains. The spiders found in the valleys of the White Mountains differ but little from those of Massachusetts. I have hardly any spiders from the other parts of New Hampshire, Vermont, or the north of Maine. From the southern part of New England I have a few from Wood's Holl and Martha's Vineyard, Mass., and Newport and Providence, R. I., and 68 species from New Haven, Conn., of which 13 species have not been found elsewhere. I have seen but few spiders of this family from other parts of the country, most collections containing very few species of them, so that I am not sure of the range of a single species. Many New England species were found by Hentz in the Southern States, and other localities are mentioned under the various species, as far as I know them.

The principal descriptive work on North American spiders is that of Hentz in the Journal of the Boston Society of Natural History, vols. iv, v and vi, reprinted in occasional papers of Boston Soc. of Nat. Hist., No. 2, 1875. In these papers a considerable number of

species of this family are described, of which I have found the following in New England:

<i>Theridion vulgare</i> Hentz	= <i>Theridium tepidariorum</i> .
<i>Theridion serpentinum</i> Hentz	= <i>Steatoda triangulosa</i> .
<i>Theridion marmoratum</i> Hentz	= <i>Steatoda marmorata</i> .
<i>Theridion boreale</i> Hentz	= <i>Steatoda borealis</i> .
<i>Theridion frondeum</i> Hentz	= <i>Theridium frondeum</i> .
<i>Theridion funebre</i> Hentz	= <i>Euryopsis funebris</i> .
<i>Theridion leoninum</i> Hentz	= <i>Ero thoracica</i> .
<i>Theridion cancellatum</i> Hentz	= <i>Laswola cancellata</i> .
<i>Theridion sphaerula</i> Hentz	= <i>Theridula sphaerula</i> .
<i>Theridion globosum</i> Hentz	= <i>Theridium globosum</i> .
<i>Theridion trigonum</i> Hentz	= <i>Argyrodes trigonum</i> .
<i>Theridion fictilium</i> Hentz	= <i>Argyrodes fictilium</i> .
<i>Linyphia communis</i> Hentz	= <i>Linyphia communis</i> .
<i>Linyphia costata</i> Hentz	= <i>Linyphia phrygiana</i> .
<i>Linyphia scripta</i> Hentz	= <i>Linyphia marginata</i> .
<i>Linyphia marmorata</i> Hentz	= <i>Linyphia marginata</i> .
<i>Mimetus interfector</i> Hentz	= <i>Mimetus interfector</i> .
<i>Spintharus flavidus</i> Hentz	= <i>Spintharus flavidus</i> .
<i>Pholcus atlanticus</i> Hentz	= <i>Pholcus phalangioides</i> .
<i>Spermophora meridionalis</i> Hentz	= <i>Spermophora meridionalis</i> .
<i>Scytodes cameratus</i> Hentz	= <i>Scytodes thoracica</i> .

The following New England species are also found in Europe and have been described there. The names used for these species are in most cases those adopted by Thorell in "Synonyms of European Spiders," Upsala, 1873, in which a full account of their synonyms is given.

- Theridium tepidariorum* C. Koch.
- Theridium lineatum* (Clerck.)
- Ero thoracica* (Reuss.)
- Mimetus interfector* Hentz.
- Steatoda guttata* (Reuss.)
- Steatoda corollata* (Linn.)
- Steatoda triangulosa* (Wlk.)
- Pholcus phalangioides* (Fuessl.)
- Scytodes thoracica* (Latr.)
- Lophomma cristata* (Blk.)

Diplostyla concolor (Reuss.)
Diplostyla nigrina (Westr.)
Linyphia marginata (C. Koch.)
Linyphia clathrata (Sund.)
Linyphia phrygiana (C. Koch.)
Stemonyphantes bucculentus (Clerck.)
Bathyphantes nebulosa (Sund.)
Bathyphantes minuta (Blk.)
Helophora insignis (Blk.)
Drapetisca socialis (Sund.)
Microneta viaria (Blk.)
Erigone longipalpis.

In 1874 and 1875, Mr. O. P. Cambridge described in Proceedings of the Zoological Society of London, under the name of *Erigone*, a number of small spiders, from my collection, which were returned to me and are nearly all redescribed here under the same specific names. The following is a list of these species with the names here used :

1874.

<i>Erigone atra</i>	= <i>Erigone longipalpis</i> .
<i>Erigone dentigera</i>	= <i>Erigone longipalpis</i> .
<i>Erigone interpres</i>	= <i>Ceratinopsis interpres</i> .
<i>Erigone probata</i>	= <i>Tmeticus probatus</i> .
<i>Erigone spinifera</i>	= <i>Lophocarenum spiniferum</i> .
<i>Erigone lata</i>	= <i>Ceratinella lata</i> .
<i>Erigone latabilis</i>	= <i>Ceratinella latabilis</i> .
<i>Erigone emertoni</i>	= <i>Ceratinella emertoni</i> .
<i>Erigone atriceps</i>	= <i>Ceratinella atriceps</i> .
<i>Erigone cristata</i>	= <i>Lophomma cristata</i> .
<i>Erigone fissiceps</i>	= <i>Ceratinella fissiceps</i> .
<i>Erigone directa</i>	= <i>Cornicularia directa</i> .
<i>Erigone indirecta</i>	= <i>Cornicularia indirecta</i> .

1875.

<i>Erigone persimilis</i>	= <i>Erigone longipalpis</i> .
<i>Erigone dentigera</i>	= <i>Erigone longipalpis</i> .
<i>Erigone ornata</i>	= <i>Grammonota ornata</i> .
<i>Erigone pictilis</i>	= <i>Grammonota pictilis</i> .
<i>Erigone provida</i>	= <i>Cornicularia directa</i> ♀.
<i>Erigone pertinens</i>	= <i>Tmeticus pertinens</i> .

<i>Erigone persoluta</i>	=	<i>Microneta persoluta</i> .
<i>Erigone cornupalpis</i>	=	<i>Microneta cornupalpis</i> .
<i>Erigone multissima</i> .		
<i>Erigone viaria</i>	=	<i>Microneta viaria</i> .
<i>Erigone florens</i>	=	<i>Lophocarenum florens</i> .

Lately, Keyserling has described several American spiders of this family from the Museum of Comp. Zool., at Cambridge, but, as far as I know, these descriptions have not been published. I have, however, seen the types which have been returned to Cambridge, and have used Keyserling's names for those species which seem to me to be new. The following species of this family are named by Keyserling in the Cambridge collection :

<i>Steatoda borealis</i>	=	<i>Theridion boreale</i> Hentz.
<i>Theridium tepidariorum</i> .		
<i>Steatoda ruralis</i>	=	<i>Theridium marmoratum</i> Hentz.
<i>Steatoda triangulosa</i>	=	<i>Theridion serpentinum</i> Hentz.
<i>Theridium punctis-sparsum</i> .		
<i>Asagena americana</i> .		
<i>Theridium zelotypum</i> .		
<i>Linyphia nebulosa</i> .		
<i>Phyllonethis placens</i>	=	<i>Theridium frondeum</i> Hentz.
<i>Phyllonethis lineata</i>	=	<i>Theridium frondeum</i> Hentz, young.
<i>Mimetus interfictor</i> Hentz.		

Therididæ.

The *Therididæ* are small, slender spiders, spinning webs, often of large size, and living in them, hanging by their claws back downward, and catching and eating the insects which become entangled among the threads. Their markings are under the skin, and do not depend to any great extent on colored hairs or scales. Fine hairs are, however, usually present, thinly scattered all over the body, and the colors are sometimes modified by them. In many species the colors are plain, without any markings on the legs or abdomen. This is usually the case in *Tincticus*, *Lophocarenum* and the smaller *Linyphiæ*, in which nearly all the species have the cephalothorax and legs dull yellow brown and the abdomen gray. The amount of color varies greatly in individuals of the same species, some being nearly white and others nearly black. In other genera the colors are bright and distinct, and several of the larger species of *Theridium*

and *Linyphia* have distinct colored patterns on the abdomen, and dark and light rings on the legs. In some species there is great variation in the markings, as *Theridium frondeum* and *Steatoda marmorata*.

The legs of the *Therididae* are usually slender. Their relative length 1, 2, 4, 3, or 1, 4, 2, 3, though there are exceptions to this proportion. In *Theridium* and the neighboring genera the spines on the legs are small and resemble the other hairs except in *Mimetus* and *Ero*, where they are usually large, especially on the two front pairs of legs.

The feet have three claws, the lateral ones with five or six teeth, and the middle, one or two. The spines under the claws are sometimes toothed as in *Epeiridae*. The female palpus has usually a single claw, but this is sometimes wanting. The maxillæ are usually as short as wide, not rounded at the end as in *Epeira*, but either ending in a straight edge, or a point at the inner corner.

The eyes are in two rows, slightly curved together at the ends so that the lateral pairs nearly or quite touch each other. The variations in size and position of the eyes are mostly in the middle pairs.

In most species there is considerable difference between the sexes. The males have the abdomen smaller, the legs longer, and the head higher than the females. The colors of the males are usually darker and the light markings less distinct than in the females, and sometimes the colors of the two sexes are very different, but usually the markings and shape of the body are so much alike that the males and females of the same species can be readily recognized.

The palpal organs of the males and the epigynum of the females are usually large and complicated in this family, and are the most convenient means of distinguishing many species, especially in *Linyphiine* and the smaller *Erigonine*.

The epigynum consists of two round spermathecae near the genital opening of the female, from each of which run two tubes, one, usually the larger and longer, to a hole outside the body, the other, usually small and short, into the oviduct near its mouth. The spermathecae can sometimes be seen through the skin, but they vary but little, while the hard parts, by which their outer openings are surrounded, differ greatly, according to the species. The internal structure of the epigynum is shown in the figures on Pl. 1. The oviduct opens in the middle of a transverse fold under the front part of the abdomen, and the openings of the epigynum are near the edge of this fold, usually on the outer side and just in front of it. Sometimes

they are simple round holes or are united into a single hole. Grooves or notches often extend from the holes to the edge of the fold, dividing it into three lobes, the outer of which usually overlap the middle one and partly conceal the grooves and openings. Various modifications of the shape of these lobes give the peculiar forms of the epigynum in many species, see figures of *Theticus*, Pl. XV. In some species a long flexible process extends backward from the middle of the epigynum along the under side of the abdomen, and in *Bathyphantes* and *Microneta* the whole epigynum is lengthened out nearly as long as the abdomen, and folded up in two folds, so that the tip is nearly covered. Pl. XXI, XXII, XXIII.

The palpal organ is a smooth bulb on the end of the male palpus, from which projects a fine tube that fits into the epigynum of the female. Inside the bulb is a sac, from which a fine duct extends to the end of the tube, through which the spermatozoa are discharged into the epigynum. In this family the palpal organ is usually partly concealed in a hollow in the tarsus. The tube, even when short, is almost always accompanied by two processes, one hard and the other soft and flexible, and most of the complications of the palpal organs are produced by modifications of these three parts. The tube itself varies greatly in length, in some species being long enough to wind two or three times around the palpal organ, and is then supported at the end by some of the appendages of the bulb. In *Bathyphantes* the tube is short and thick, and surrounded by long and complicated appendages. Besides the palpal organ itself, the terminal joints of the palpus are modified in various ways. The tarsus is hollowed out on one side, and the edges of this hollow are of various shapes to support the parts within. At the base of the tarsus is an appendage, which I call the tarsal hook, jointed to the tarsus at one end, and extending sidewise around the base of the palpal organ. This part varies greatly in shape, and is one of the most useful in the identification of the smaller species. In the *Theridine* the tarsal hook is absent. The tibia of the male palpus is usually more or less modified in shape, having often a spine or hook on the upper part, extending over the tarsus. Sometimes the patella is also modified.

The webs of the *Therididae* consist usually of a flat or curved sheet under which the spider stands, and which is supported by threads running in all directions to the neighboring objects. In some species these threads form a large mass over the web, and serve to stop insects flying between them and make them drop to the flat web below, where they are caught by the spider. The webs of

Theridium have, in place of the flat sheet, only a small tent or thickened part of the web, under which the spider stands and near which she hangs her cocoons of eggs.

I include in this family the *Theridioideæ* of Thorell, leaving out *Pachygnatha*, which belongs with *Tetragnatha* in another family, but including the *Scytodoideæ*. It is very difficult to divide this family into smaller groups, but the division of the larger species into *Theridiidæ* and *Linyphiidæ*, as has been done by Blackwall and Menge, seems to me a natural one, and *Pholcus* and *Scytodes* evidently form a natural group by themselves. The other small spiders, usually included in *Erigone*, or by Blackwall and Cambridge in *Neriene* and *Walckenaera*, I include in another group, though the limits between it and the other sub-families are very uncertain. This divides the family into the following four sub-families:

1. Theridinæ.

The maxillæ in this group are pointed at the inner corner, and turned inward toward the lip. The palpi of the male do not have the tarsal hook. The thorax is usually short and wide and the abdomen large. The following genera are in this group:

<i>Theridium</i> ,	<i>Argyrodes</i> ,	<i>Spintharus</i> ,
<i>Ero</i> ,	<i>Ulesmis</i> ,	<i>Steatoda</i> ,
<i>Mimetus</i> ,	<i>Euryopsis</i> ,	<i>Asagena</i> ,
<i>Theridula</i> ,	<i>Lasciola</i> ,	<i>Pholcomma</i> .

2. Scytodinæ.

These are pale, long-legged spiders, with short round thorax, and six eyes, or eight with the front pair very small. The palpal organ is not enclosed in a hollow of the tarsus, and in *Scytodes* is very simple, as in the *Mygalidæ*, while in *Pholcus* it has several large appendages from the base. The maxillæ are turned inward over the lip. The genera are

<i>Pholcus</i> ,	<i>Spermophora</i> ,	<i>Scytodes</i> .
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3. Erigoninæ.

This group includes most of the old genus, *Erigone*. All the species are small, 1^{mm} or 2^{mm} long. The abdomen is usually long and oval, not thick or rounded as in *Theridinæ*, and the cephalothorax is usually longer and the legs shorter, as in *Drassidæ*. The maxillæ are short and straight on the ends, not pointed inward. The males of

many species have horns or humps on the head, but otherwise differ little from the females. The palpi of the males are large and complicated. The tarsal hook is present but usually small and smooth. The tube is of various lengths, but the supporting appendages are usually small and not so complicated as in *Linyphinae*. The tibial hook is usually large and of a great variety of shapes. Most of these spiders live under leaves or near the ground. The webs of most are unknown, but some species make a flat web under leaves like *Linyphinae*. This group connects with *Theridinae* through *Ceratinella* and *Pholcomma*, and with *Linyphinae* through *Tmeticus* and *Microneta*. The following are the genera of this sub-family :

<i>Ceratinella</i> ,	<i>Spiropalpus</i> ,	<i>Lophocarenum</i> ,
<i>Ceratinopsis</i> ,	<i>Lophomma</i> ,	<i>Gonatum</i> ,
<i>Grammonota</i> ,	<i>Cornicularia</i> ,	<i>Erigone</i> .

4. Linyphinae.

The smaller species of this group, forming the genus *Microneta*, resemble closely *Tmeticus* of the last sub-family, in the shape of the body, and size and colors. The palpal organs show their relations to *Bathyphantes*. In the larger *Linyphinae* the legs are long and have long and conspicuous spines. The abdomen is thick and flattened above, or high in front and pointed behind. The male palpi are large and complicated. The tibia is usually short but otherwise not much modified. The tarsal hook is large and varies greatly in shape according to the species. The epigynum is large and in many species folded. The webs consist of a flat sheet supported by irregular threads. The following genera belong to this sub-family :

<i>Linyphia</i> ,	<i>Helophora</i> ,	<i>Bolyphantes</i> ,
<i>Diplostyla</i> ,	<i>Drapetisca</i> ,	<i>Microneta</i> .
<i>Stemonyphantes</i> ,	<i>Bathyphantes</i> ,	

Theridium Walck.

Steatoda Menge, Preussische spinnen.

The cephalothorax is broad oval, usually with a dark line along the middle. The abdomen is either nearly spherical or else high in the middle and flattened behind. Pl. XVII. The usual markings of the abdomen are a scalloped or herring-bone stripe in the middle and dark oblique marks at the sides, but in several species these are partly or entirely absent and replaced by other markings. The legs are usually 1, 4, 2, 3, but in long-legged males are often 1, 2, 4, 3.

The legs are long and slender and the spines are small. The eyes are nearly of the same size and at nearly equal distances from each other, except the lateral pairs which are close together. The maxillæ are longer than wide and pointed at the inner corners. The mandibles are small and differ in the sexes in several species, those of the males being much longer, with a long claw and large teeth on the inner side. The males are usually darker colored and more slender than the females, and in some species differ greatly from them. The webs of this genus consist of a small, closely woven portion, sometimes forming a tent and covered with dirt and pieces of plants, and a large loose part composed of threads radiating irregularly from the first in all directions. The spider usually stands back downward under the tent or close portion of the web. The eggs are laid in round cocoons, which hang in the web or are concealed under the thickest part of it.

Theridium differens, new.

PLATE I, FIGURES 1 TO 1*d*.

Length of female, about 3^{mm}; male 2^{mm}; a little smaller than *maritimum*. The herring-bone stripe on the abdomen of females is often very brightly colored, white at the edges and red in the middle. The rest of the abdomen is reddish brown, darkest next the white edges of the stripe; there are no distinct spots on the under side. In males the stripe on the abdomen is obscure and the whole abdomen dark reddish brown. These colors vary greatly, and especially with young individuals, the abdomen is often entirely yellow with indistinct brown markings. The cephalothorax is orange brown without dark stripes. The legs and palpi yellow in females and orange brown in males, slightly darker at the ends of the joints. Sternum orange without markings. The difference in size and color between the sexes is greater than in the other species of this genus. The epigynum has no opening on the outside. Fig. 1*c*. The palpal organ is large, the end of the tube supported by a soft appendage, opposite to which the bulb has a conical process covered with short scale-like teeth. Fig. 1*b*. This spider lives on grass and low bushes where it is taken abundantly throughout the summer. In winter the young are found under leaves. The webs are seen to the best advantage on the horizontal branches of spruce trees. The spider spins a small tent under the twigs from which the web spreads irregularly according to the shape of the branch.

From Mt. Washington, N. H.; Portland, Me.; Eastern Massachusetts; Mt. Tom, Mass.; New Haven, Conn.

Theridium spirale, new.

PLATE I, FIGURES 2 TO 2d.

Length of female 3^{mm}; male 2½^{mm}. Cephalothorax of female brownish orange above and below, with an indistinct dark stripe above as wide as the eyes at the forward end. In the male this stripe is much more distinct. Legs of female yellow, with dark rings at the ends of the joints. In the male the legs are yellow at the base, and become darker toward the tip. The abdomen has less red color than in *differens*. The middle stripe is distinctly marked, especially in the male, and is sometimes slightly reddish in the middle, but oftener gray with a dark spot near the front end. The rest of the abdomen is yellowish gray, almost black near the middle stripe, in well marked specimens. The females are much like those of *differens*, but the males of these two species are very distinct in color and markings. Fig. 3, 3a. The epigynum has two openings outside the edge. Fig. 2c. The palpal organ has a very long tube which goes twice round the top of the bulb. Fig. 2b. The inner tubes of the epigynum correspond in length with those of the palpal organs. Fig. 2d.

This does not seem to be as common as *fusca*. I have it from several localities near Boston and Salem, Mass.; from Williamstown, Mass., J. S. Kingley; and New Haven, Conn.

Theridium montanum, new.

PLATE I, FIGURES 3 TO 3c.

This species I have found on various parts of Mt. Washington, N. H., in the summers of 1874 and 1877, in webs in spruce trees. It is a little larger than *spirale* and resembles it in color, though the markings are different. The legs in both sexes are yellow, browner toward the tips, and with indistinct dark rings at the ends and middle of the joints. The thorax orange, with a plain dark stripe as wide as the eyes in front, and black edges. The light stripe on the abdomen is yellowish gray. It is narrowed in front and the usual dark color outside of it forms at this part two indistinct black spots. Farther back where the middle stripe narrows again, there are two other black spots in the dark color, of various degrees of distinctness in different individuals, so that some specimens have four plain black spots on the abdomen. Toward the tail the middle stripe is narrow, and in some individuals crossed by transverse black marks, like *Linyphia*. The black and gray markings on the sides of the abdomen, which are irregular in most species, in this sometimes form distinct black spots. The sexes are much alike in color and size. The epigynum

has a small oval opening outside the fold. A short distance from the edge at the sides of the opening are two pits with thickened edges behind. The palpal organ, has the tube very short and out of sight. On the inner side of the bulb is a long horny piece, with two short teeth on it opposite the tube.

White Mountains.

Theridium zelotypum, new. Specimen named by Keyserling in Mus. Comp. Zool., Cambridge, Mass.

PLATE I, FIGURES 4, 4a.

Of this large species I have only females. They measure 4^{mm} or more in length. The cephalothorax is orange with a distinct dark stripe in the middle, and dark edges. The legs are orange, with brown rings at the ends and indistinct rings in the middle of each joint. The light stripe on the abdomen is distinctly herring-bone shaped, with the corners running down the sides of the body dividing the black stripes into several separate squarish spots. The middle of the abdomen is bright red. Underneath there is a black spot under the spinnerets, and the epigynum is brown. The epigynum has a single opening outside, some distance from the edge.

These spiders were found at Eastport and Portland, Me., Aug., 1872 and 1873, in spruce trees. The webs were large, supported between the branches by threads running upward to the branches above and furnishing lodging for numerous specimens of *Arygrodus trigonum*. The spider had usually a tent covered with dry spruce leaves, under which it hung with cocoons and young.

Theridium murarium, new.

PLATE I, FIGURES 5 TO 5b.

Length of female 3 to 4^{mm}. Legs of first pair nearly twice the length of the body. General color gray. An undulated stripe on the abdomen, white at the edges and reddish in the middle. On both sides of this stripe the abdomen is nearly black and becomes lighter toward the sides. Underneath the abdomen is light gray with a darker spot in the middle and over the epigynum. The cephalothorax is gray with a narrow black line in the middle and on each side. The sternum is light gray with a black edge and a black stripe in the middle. The legs are gray with blackish bands at the ends and middle of each joint. There is little difference in color or size between the sexes. This species lives usually under stones and fences, where it is well concealed by its color. It is also found on the dried tops of wild *Spiraea*.

The epigynum has two holes wide apart on the outside near the thickened edge. The palpal organ is small, with a short tube supported by a blunt spine at the tip. The palpal organ differs from that of *T. varians* chiefly in the shape of the spine at the side of the bulb.

Salem, Beverly and Danvers, Mass.; New Haven, Conn.; and Providence, R. I. Adults of both sexes found from June to August.

***Theridium puncto-sparsum*, new.** Specimen named by Keyserling in Mus. Comp. Zool., Cambridge, Mass.

PLATE I, FIGURES 6, 6a.

Females about 3^{mm} long. Abdomen dark gray, with white spots. The usual stripe is indicated by a large white spot in front and irregular lines of small white spots where the edge of the stripe is in other species. Under the abdomen and on the sides are larger white spots. The cephalothorax is dark yellow-brown, with a darker stripe in the middle and on each side. Sternum dark brown. Legs and palpi yellowish with wide dark brown rings at the ends and middle of each joint. The epigynum has a large oval opening outside near the edge. The male resembles the female very closely. •

Common in the neighborhood of Salem and Boston, under stones in stone-walls and like shady places, with a small web. New Haven, Conn., under stones.

***Theridium sexpunctatum*, new.**

PLATE II, FIGURE 5.

Length 2^{mm}. Cephalothorax light yellow, with a gray and black stripe nearly as wide as the eyes, along the middle, and a narrow one on each side. The abdomen is light yellow and has six irregular black patches, in each of which is a round light spot. Fig. 5. There are other black markings on the sides and beneath. The sternum has a dark line on the edges. These markings are probably variable in shape and size. The legs are light yellow, with a dark ring at the end of each joint. The epigynum has a large oval opening on the outside, within which are two smaller ones apparently leading to the spermathecae. Fig. 5c.

The male has the cephalothorax and legs deeper yellow and with dark markings less distinct. Legs longer and abdomen smaller, as usual, the latter with markings similar to the female. The mandibles of the male are twice as long as those of the female, with a large tooth on the middle of the inner side. The claw of the mandible is

nearly as long as the basal joint, slender and straight in the middle and slightly curved inward at the tip. The palpal organ has a large two-toothed process at the tip, and a tube about half the length of the tarsus, supported by a stiff black spine inside and a thin appendage outside.

One female from English Head, Anticosti I., July 22, 1881, S. Henshaw. Several females and one male from Mt. Washington, N. H., June 11, 1877, in the highest trees.

Theridium tepidariorum C. Koch, Die Arachniden, 1841.

Theridion vulgare Hentz.

PLATE II, FIGURE 1.

This is one of the most common house spiders, but is seldom found on plants or far from houses. The female measures about 6^{mm} in length. The legs of 1st pair are nearly three times as long. The male is shorter and has proportionally longer legs. The legs are 1, 4, 2, 3 in females and 1, 2, 4, 3 in males. The color varies from dirty white with a few blackish spots, to almost black. The thorax is yellowish brown. The legs are light yellow with brownish or dusky rings at the ends and middle of the joints. In the males the legs are orange-brown, darker at the ends of the joints. The abdomen, in dark and well marked specimens, has on the hinder part six transverse black marks curved upward and thicker in the middle, and more or less connected together by black spots at the ends. These marks are most sharply defined on the hinder edge, where they are bordered by silvery white lines. The upper mark is the largest and forms a conspicuous black and white spot in the center of the abdomen. Just in front of this and at the sides are two large black spots much obscured by small black spots and lines. In lighter individuals these markings are smaller and less definite. The palpal organ has a short and stout tube supported by a grooved process roughened outside at the tip. These project beyond the end of the tarsus and are easily seen. The epigynum has a large oval opening outside.

This common spider makes a large web, usually in a corner of a room, under furniture, behind the posts of fences, or in some such dry and shady place. It sometimes stands in the web in a thin tent toward which the web is closer than on the outside, but oftener makes its nest in a neighboring crack or corner. A male and female often occupy the same web. The eggs are laid in brownish, pear-shaped cocoons, several of which are made the same season by one

spider and hang in the web near the nest. It is found in Europe in plant-houses, and in South America and Australia. Its native country is unknown.

Theridium rupicola, new.

PLATE II, FIGURES 2 TO 2c.

This little species closely resembles *T. tepidariorum*, the females being easily mistaken for the young of that species. The females are 2.5^{mm} long and the males 2^{mm}. The colors are as in *tepidariorum*, though I have never seen such light individuals as in that species, nor do the colors of the male differ so much from the female, the legs being only slightly more orange and showing the brown rings distinctly. The abdomen has a pointed hump in the middle, partly covered by the middle black spot and partly bright white. The large lateral black spots have also white spots behind them, and sometimes the whole back part of the abdomen behind the hump is nearly white. The palpal organ differs plainly from *tepidariorum*. The epigynum has a narrower opening on a ridge just in front of the fold.

This spider lives under stones and among rocks where it builds webs like those of *tepidariorum*, often containing grains of sand, which look as though placed there purposely by the spider.

Eastern Massachusetts, and New Haven, Conn.

Theridium globosum Hentz, Boston Journal of Nat. Hist., vol. vi.

PLATE II, FIGURE 3.

This little spider is about 2^{mm} in length. The abdomen is somewhat flattened behind and 1.5^{mm} high, pointed toward the spinnerets. The hinder portion is white with a large spot in the middle, below which, in my specimen, is a smaller black spot. The front upper part of the abdomen is yellowish gray and the under part brown. The cephalothorax is orange brown, except the space between the eyes, which is black. The legs are also orange brown. The epigynum is dark brown and very prominent. The opening appears to be in front near the pedicel of the abdomen.

One female from tent in web. Readville, near Boston, Aug. 13, 1874. Hentz's description and figure in Boston Journal of Nat. His., vol. vi.

Another specimen, from New Haven, Conn., had the front part of the abdomen brown with a bright white line behind it over the back and down both sides.

Theridium unimaculatum, new.

PLATE II, FIGURES 4, 4a.

This species differs much in colors and markings from the others and may almost always be distinguished by the white abdomen with a black spot in the center of the back. The females are 2^{mm} long, the males a little smaller. The cephalothorax is orange with a blackish spot around the eyes and extending backward in a point as far as the dorsal groove; there is also a narrow black line along the edges. The legs are yellow or light orange in the female and orange brown in the male, the first and second pairs are also much stouter in the male. The sternum is orange with black edges. The abdomen is white with a black spot above and another around the spinnerets. The hinder edge of the epigynum is turned outward in the middle where it has a single small opening. Fig. 4b. The palpal organ has a short tube about half the length of the tarsus, supported by two flexible appendages. There is also a large two-pointed black tooth at the end of the palpal organ. Fig. 4a.

This spider is common in Eastern Massachusetts and Connecticut, on bushes in summer and under leaves in winter. I have not seen the web.

Theridium frondeum Hentz.*Phyllonethis placens* Keys., type in Mus. Comp. Zool., Cambridge, Mass.

PLATE III, FIGURES 1 TO 1h.

Length of female 3 or 4^{mm}; length of first leg, 8 to 10^{mm}. The color is light yellow with markings which are very variable. Usually the thorax has two fine black lines from the eyes backward, uniting behind the dorsal groove, and black edges. The legs are usually darker at the ends of the joints. The abdomen has the undulated light band in the middle, as in other species of the genus, usually bordered by brownish transparent spaces with two black spots just over the spinnerets. Sometimes there are black spots in these transparent bands, especially toward the hinder end, and these may be united into two long black patches. Figs. 1b, 1c. In some individuals of both sexes the black on the cephalothorax forms a wide band in the middle almost covering the back, and a black stripe of similar width extends backward on the abdomen for half its length. Fig. 1e, 1f. These black striped individuals have all the other variations of color and markings. The males have all the colors and spots brighter and the legs longer than females. The mandibles of the males are longer and curved inward on the front and outer sides, and have at the base in front a low con-

ical point. The epigynum has the single opening on the outside and turned forward.

This is a very common spider on plants, from which it may be shaken at all times in the summer. White Mountains to Connecticut.

Theridium lineatum (Clerck), Thor., Synonyms of European Spiders.

PLATE III, FIGURES 2, 2a.

I have several times found at Beverly, Mass., spiders which appear to be the European *lineatum*. The colors are similar to *T. frondeum*, but the markings are different. The thorax has a fine black line in the middle and one on each side near the edge. The sternum has also black edges and a black line in the middle. The abdomen has six pairs of black spots, under which in some specimens were bright crimson bands. There are four black spots around the spinnerets and a black stripe under the abdomen.

All my specimens are young females from Beverly, Mass., and an island in Salem harbor.

Mimetus Hentz.

Boston Journal of Nat. Hist., vol. vi. Simon, Arachnides de France, vol. v.

This genus is much like *Ero*, but the cephalothorax is lower and long. The head is narrow and prolonged forward. The mandibles are long. The abdomen is high and wide in front and resembles *Epeira* in shape and markings. The legs are long and spiny as in *Ero*, but the rest of the body is less hairy. The palpi of the male have a long tube and a process at the base of the tarsus much as in *Ero*.

Mimetus interfector Hentz.

PLATE III, FIGURES 3 TO 3b.

Length about 5^{mm}, front legs 17^{mm}. Length of legs 1, 2, 4, 3. The cephalothorax is one and a half times as long as wide and widest near the hind end. The head is long and the front middle eyes extend slightly beyond the front edge. Fig. 3a. The mandibles are long and dark colored except a spot near the base. The cephalothorax is whitish with a broken stripe of brown on the head extending back to the dorsal groove. The abdomen is shaped like that of *Epeira angulata*, widest in front with two prominent corners. The markings are also *Epeira*-like, a central stripe with dark spots or points along the edges. The color is gray and brown in the darker portions. The legs are light yellow with dark brown rings at the

ends of the femora and patellæ of the first two pairs and less distinctly at the end of the other joints. There are long dark colored spines on the legs as in *Ero thoracica*. The epigynum is dark colored and the opening is under the end which extends backward over the fold.

The males are slightly smaller than the females but have similar colors and markings, quite different from the next species, though the palpi are much alike.

Eastern Massachusetts and New Haven, Conn., in low bushes in woods. I have found it often by sweeping and occasionally on fences, but have never found one in its web. Hentz describes what I suppose is this species from Alabama, where he says it lives in houses and preys on other spiders, making no web of its own. This species is said by Simon (*Arachnides de France*, vol. v), to occur in Southern Europe.

Mimetus epeiroides, new.

PLATE III, FIGURES 4 TO 4b.

The only adult, a male, is about 3^{mm} long. The cephalothorax in this and in young females is long and narrow in front, as in *intersector*, light yellow in color, with four fine black lines from the eyes back to the dorsal groove. The abdomen has the same epeiroid shape as in *intersector*. The general color of the abdomen is light yellow and there are white transverse bands on the front part. The black spots are small and irregular and arranged in pairs, which do not run together into stripes as in the other species. The sternum has four pairs of brown spots at the base of the legs. The femora of the two front pairs of legs have on the under side two fine black lines. The legs are yellowish white above without dark rings. The mandibles are white with a small black spot in front near the base. The palpal organ is large and has a long slender tube supported only at the end by short processes. Fig. 4b. The tarsus has a large curved process at the hinder corner on the outside, and two small slender processes at the end. The outer edge is finely toothed. The tibia and patella have long hairs.

Adult male from Essex, Mass., and young of both sexes from various places in eastern Massachusetts, and Providence, R. I.

Ero C. Koch.

These spiders have the cephalothorax very short and high in the middle, from which it slopes abruptly back under the abdomen, which is also high in front. The abdomen and legs are covered with long

hairs and the legs with long stiff spines, as in *Linyphia*, especially on the tibia and tarsi of the two front pairs of legs. Legs 1, 2, 4, 3.

Ero thoracica (Reuss) Thor., Synonyms of European Spiders.

Theridion leoninum Hentz.

PLATE III, FIGURES 5 TO 5d.

This spider resembles very much *Theridium tepidariorum* and *ruficola*, but has brighter colors and much longer and coarser hairs and spines. It is 3^{mm} or 4^{mm} long. The cephalothorax is nearly as high in the middle as long, and slopes at a sharp angle toward the abdomen. The head is slightly lower than the middle of the thorax and the front middle eyes project beyond its front. The abdomen is as high as long, Fig. 5, and has a pair of humps on the highest part. The cephalothorax is light yellow with a dark irregular stripe each side, and a middle line crossed by a crescent-shaped mark on the highest part. The abdomen is white with brown spots of various shapes. The front half of each tubercle is dark brown and a dark line extends from these down the sides. At the back of the abdomen there are usually several transverse stripes which are sometimes reddish, but I have never seen them bright red as figured by Blackwall. Stiff brown hairs are scattered all over the abdomen. The legs are ringed with brown and light yellow, and have coarse brown hairs and long spines on the tibia and tarsus. The outside of the epigynum has a wide middle lobe and narrow, dark-colored lateral ones. The male palpi have a long tibia and rounded tarsus, each of which has a strong process near the joint. Figs. 5b, 5c. The palpal organ has a long tube, the end of which rests between three short processes.

I have found this spider common under leaves in winter, in the neighborhood of Boston and New Haven, but have not seen its web. In Europe it is said to make small loose cocoons hanging by a long stem. I have often found such cocoons, but have not traced them to this or any other spider.

Steatoda Sund.

Eucharia Menge, Preussische spinnen.

Steatoda, Thorell's Genera of European Spiders.

These spiders are among the largest of the family, the common *S. marmorata* measuring 6^{mm} or 7^{mm} long. The legs are shorter and stouter than in *Theridium*. The abdomen is oval and usually

slightly flattened on the back. It is smooth and shining, the hairs being fine and scattered so as to be hardly visible. The thorax is thick and hard and in some species marked with hard teeth and depressions. The head is generally high and narrowed in front. The front middle eyes are in several species much larger than the others, and farther forward and wider apart. In others all the eyes are nearly of the same size. The webs of this genus consist of a flat sheet supported by threads. The spider stands under one side of the flat portion like *Linyphia*. This genus is divided by Menge and Simon into several: *S. guttata* belongs to *Crustulina* Menge, *S. corollata* to *Lithyphantes* Th., *S. serpentina* to *Teutana* Simon.

Steatoda borealis (Hentz).

Theridion boreale Hentz, Boston Journal of Nat. Hist., vol. vi.

PLATE IV, FIGURES 1 TO 1d.

This common spider resembles very closely *Theridium quadripunctatum* of Europe, from which it differs mainly in the palpal organs, see Menge's figures. The female is 6^{mm} long. The thorax is orange brown, darker in old than young specimens, and covered thickly with short and stiff dark brown hairs. The head is about one-third as wide as the thorax and more elevated, the eyes near together and the front pair projecting forward beyond the head. Fig. 1c. The legs are brown with faint darker rings and thickly covered with brown hairs. The abdomen is dark brown, sometimes without any light marks above, but usually there is a light line running round the forward half and another in the middle, extending half way back and sometimes farther and broken in several places. The four depressed spots on the abdomen are usually very distinct. Beneath there is a light band on each side of the abdomen connected together behind the spinnerets. The sternum and mouth parts are dark brown. The sexes are much alike in size and color. The palpi of the male are very large. Figs. 1a, 1b. They are the only palpi which are well figured by Hentz, Boston Journal of Nat. Hist., vol. vi. I have never seen a good web of this spider. It is found in corners and under fence rails, usually holding close to the wood with the legs drawn up against the body. In this position, under a fence cap, I have seen a pair in copulation in May, and again in April at New Haven, Conn. The pair stood head to head, as far apart as possible. The left palpus was kept in, an hour and a quarter after they were first seen. The male contracted his body suddenly and swelled up the base of the palpal organ once every two or three seconds. Two days afterward I saw

the right palpus used by the same pair for an hour. The adult males and females occur at all seasons. This species is found also under stones and logs, with more or less web, which becomes torn in finding them.

Eastport, Me.; Montreal, Canada; White Mountains; Massachusetts; Rhode Island and Connecticut.

Steatoda guttata (Reuss) Thor., Synonyms of European Spiders.

PLATE IV, FIGURES 2 TO 2*b*.

This spider is about 2^{mm} long. The cephalothorax and abdomen are about equal in length. The abdomen is nearly spherical and is hard at the forward end, where it has a horny ring around its attachment to the thorax. The thorax is high and spotted, Fig. 2, with large dark colored hairs, at the base of each of which is a horny ridge. Similar ridges occur on the sternum. There are two varieties of coloring which run into each other. In one variety the abdomen is yellow or orange, without markings, or only faint indications of them, the legs are yellow, and the thorax dark brown. In the other variety the thorax is dark brown, the legs are yellow, with indistinct rings at the ends of the joints, and the abdomen dark brown, somewhat like *borealis*, with light spots and several silvery white spots, usually two on each side, one in front, one behind, and one or two in the middle line. There are also light spaces around the four dorsal muscle-spots. Fig. 2. The two color varieties are equally common, but I have not found both in the same place. This species is common under stones at all seasons. Adult males and females found abundantly in April and May.

Steatoda marmorata (Hentz).

Theridion marmoratum Hentz.

Steatoda ruralis Keys., specimen named in Mus. Comp. Zool., Cambridge, Mass.

PLATE IV, FIGURES 3 TO 3*f*.

Both sexes 6^{mm} or 7^{mm} long. The cephalothorax and legs yellowish brown, dark in old specimens and light yellow in young. Legs covered with fine dark hairs. The markings on the abdomen are variable. The two extreme forms are shown in Figs. 3, 3*a*. In most specimens there is an oblong dark spot that nearly covers the back of the abdomen. Fig. 3*a*. This is darkest at the edges, especially the hinder edge, and is bordered outside by silvery white. The sides are usually more or less scalloped. The middle is lighter with a central dark stripe. In other individuals of either sex the dark

markings are broken up into four pairs of black spots more or less connected with a broken middle line, as in Hentz's figure. These spotted individuals are usually darker colored than the others. The head is wider and the eyes smaller and farther apart than in the other species and the front middle eyes are the smallest. The head is wider in males than females and the mandibles larger. There are two teeth under the claw of the mandible, Fig. 3e, which are much larger, especially the inner one, in the males. Fig. 3f. The maxillæ of males are longer and more pointed than in females. The epigynum has a small opening outside and a slight notch in the fold opposite to it. The palpal organ has a stout black tube covered at the end by two short processes. At the outer end the tarsus has a notch under which is a soft appendage of the palpal organ. The various parts are crowded together and not easily made out. The whole male palpus is about the length of the first femur.

Eastern Massachusetts; Montreal, Canada; New Haven, Conn. Adults of both sexes in May and June. It is common under stones at all seasons, under leaves, and occasionally on bushes.

Steatoda nigra, new.

PLATE IV, FIGURES 4 TO 4b.

Female 2.5^{mm} long. Male 1.5^{mm}. Abdomen black. Cephalothorax yellowish, covered with fine black hairs. Legs yellowish at the base and ends, but dark and covered with black hairs in the middle, except the third pair, which is yellow its whole length, or at least lighter than the other. The cephalothorax is as high as long. The front eyes largest and projecting forward. The males are much smaller than females. The palpal organs are simple, Fig. 4b, and the opening of the epigynum very small.

I have specimens from Portland, Me.; Beverly, Mass. and Holyoke, Mass.

Steatoda corollata (Linn.) Thor., Synonyms of European Spiders.

I have one ♀ spider from Malden, Mass., from H. L. Moody, which I believe belongs to this European species. It is rather larger than most females of *marmorata*, but the legs are shorter and stouter. The thorax is dark brown and the legs lighter brown with dark rings at the ends of the joints. The two basal joints are also dark brown. The abdomen is yellowish at the sides and has four or five irregular yellowish spots, or pairs of spots, along the middle of a blackish brown oval patch, which nearly covers the middle of the back. In

some European specimens the abdomen is almost black with pairs of small yellowish spots. The eyes are all nearly the same size, the front middle pair slightly larger and farther forward than the others. The epigynum is very different from the other species.

Steatoda triangulosa (Walck) Thor., Syn. European Spiders.

Theridion serpentinum Hentz.

Teutana triangulosa Simon, Arach. de France, vol. vi, pl. 3, fig. 6.

Female 4^{mm} long. Legs longer and more slender than in *S. boreale*. First pair twice as long as the body. Thorax orange-brown, slightly rough in females and with short ridges at the base of the hairs in males, as in other species. The front middle eyes are black and not larger than the others. The legs are light yellow with slightly darker rings at the ends of the joints. There are thickened brown spots at the base of the hairs all over the body. The abdomen is light grayish yellow with two irregular brown stripes nearly broken up into spots, sometimes connected with each other, and with brown markings on the sides. In the engraving of Hentz's figure these markings are much more serpentine than in the original painting, where they have a much more natural shape. The epigynum has a triangular opening behind which is a thick ridge. The palpi of the male are as long as the femur of the second legs. The tarsus is pointed at the tip and the palpal organ is shaped much as in the other species.

I have found this species at New Haven, Conn., in the museum, where it even lives in the glass cases. Mr. Marx has found it in Washington. Hentz had it from Georgia.

Asagena Sund.

This is much like *Steatoda*, but the body is more flattened, like *Drasside*. The abdomen is flat and widest behind the middle. The cephalothorax is long and narrowed in front. The eyes are small and near together, the hind middle pair larger than the others. The usual pattern of marking in *Steatoda* is entirely wanting in this genus; the colors are dark with bright white or yellow spots on the abdomen. The feet of the male are armed with strong teeth on the under side. Fig. 6*b*. These spiders are said to make a noise by rubbing the abdomen and thorax together near the stem, but I have never heard it in this or any other species.

Asagena Americana Keys.

PLATE IV, FIGURES 6 TO 6c.

4^{mm} long. Cephalothorax dark reddish brown, slightly rough in females and with sharp elevations along the sides and edge in males. Abdomen dark brown with two white spots across the middle. Legs yellow-brown, in the males, with two rows of teeth under each femur, largest on the hinder pair and near the end of the femur of the second pair. Sternum dark brown, rough, and covered with short hairs. The eyes are about equal in size and separated by their diameter from each other. The males differ from females in having the cephalothorax larger and legs stouter, and both rougher and more spiny than in females. The epigynum has a wide opening over the fold under a hard convex plate between the air sacs. The male palpus is large and the palpal organ has a long black tube supported by a hard process on the inside and a soft one near the tip.

Eastern Mass.; Williamstown, Mass., J. S. Kingsley. Schoharie, N. Y.; New Haven, Conn.; Washington, D. C., Geo. Marx. Usually under stones with some web. Females with round, loose cocoons, July 10, Salem. Males, May 10, in the Boston public garden, and Schoharie, N. Y., May 28. Young of both sexes are found under stones in winter.

Argyrodes Simon, Hist. Nat. des Araignees.

In this genus the abdomen is triangular or prolonged backward to a point far beyond the spinnerets. The cephalothorax is long and narrow. The head slopes forward in front of the eyes and the mandibles point obliquely forward. The legs are long and slender. The middle eyes of both rows are farther from each other than from the side eyes, and are somewhat larger. In *A. fictitium*, which belongs in *Ariannes* Th., the middle eyes are close to the lateral, forming two groups of four eyes each, which appears to be the only reason for separating this from *Argyrodes*.

Argyrodes trigonum.

Theridion trigonum Hentz, Boston Journ. Nat. Hist., vol. vi.

PLATE V, FIGURES 1 TO 1c.

This I suppose to be the *Theridion trigonum* of Hentz. It agrees in size and color with his description and figures, and in the arrangement of the eyes. It has also the peculiar cocoon described by Hentz. Large females measure 3^{mm} from head to spinnerets. The upper part

of the abdomen varies in length and shape, and is usually shorter in the young; seen from above the tip is two-lobed. The back of the abdomen is usually nearly straight, but it can be turned downward, as in Fig. 1. This is done when the spider is alarmed. The abdomen is light yellow, sometimes with a metallic luster. There is often a black spot each side and behind over the spinnerets, and sometimes the sides are reddish brown. The legs are yellow, covered with fine hairs. The thorax is yellow, sometimes with three brown bands that nearly cover it. The head of the female is high; the part bearing the eyes slightly raised and separated by a notch from the part over the mandible, which is somewhat farther advanced than the eyes. Fig. 1. In males each of these divisions of the front of the head gives rise to a horn. Fig. 1c. The males are darker colored and have the abdomen smaller and less angular than females. The middle eyes in both sexes are far apart, Fig. 1b, as is usual in spiders where the males have middle horns. The epigynum is dark brown and much raised. The palpal organs are simple and *Theridion*-like, Fig. 1d.

These spiders live among the the upper threads of the webs of *Agalena*, *Linyphia* and *Theridium*, and are most common in woods of pines and spruce. They look, in the web, like straws, or still more like the scales from pine buds, which are often caught in the same webs. I have seen them, however, in small webs, apparently made by themselves. When alarmed they draw the feet up close to the body and curl the abdomen under. The cocoons are of a peculiar bottle-shape, Fig. 1e, as described by Hentz, and are found in the borrowed webs in August. I have not seen them disturbed or noticed by the makers of the webs.

I have them from Eastport, Me.; New Haven, Conn.; and from Albany, N. Y., and they seem to be common wherever I have collected in summer. The young are found in winter under leaves.

Argyrodes fictilium.

Theridion fictilium Hentz, Boston Journ. Nat. Hist., vol. vi.

PLATE V, FIGURES 2, 2a.

This is a much more slender species than *trigonum*. The cephalothorax is 1^{mm} long, the abdomen 4^{mm}, in the largest specimen. The fourth legs are as long as the body, the first pair longer. The general color is light yellow. The abdomen is silvery and has a dark stripe on the back, wide at the forward end and tapering behind to a fine line. The thorax has three irregular blackish lines, the middle

one forked in front. The eyes are larger and closer than in *trigonum*, and are in two groups widely separated in the middle. The front of the head extends forward beyond the eyes, and the mandibles point forward at an angle of forty-five degrees with the edge of the thorax. The maxillæ, lip and sternum are also much lengthened forward. I have not seen the male, and have only two females from Essex and Danvers, Mass. They were shaken from bushes, and I have not seen the web. Hentz had it from Alabama. He says that the long hump can be bent nearly double, as in *trigonum*.

Theridula, new genus.

This genus includes *T. spherula* (Hentz) and *T. gonygaster* Simon, from southern Europe. The cephalothorax is more narrowed in front than in *Theridium*. The legs are very short and slender. The abdomen is as wide or wider than long in the females. The color in both species is greenish gray, with bright black and white markings. The male palpi are very simple and differ greatly from any species of *Theridium*. The tibia laps over the tarsus half its length. The palpal organ projects very slightly from the bowl of the tarsus and appears to have no appendages except the short tube.

Theridula spherula.

Theridium spherula Hentz, Boston Journal of Nat. Hist., vol. vi.

PLATE V, FIGURES 3 TO 3b.

About 1.5^{mm} long and about the same in width. The abdomen is wider than long, yellowish gray, with a bright, greenish yellow spot in the middle and a black spot on a slight elevation each side. There is also a black spot around the spinnerets. The cephalothorax is yellow and has a wide black stripe in the middle. The legs are light yellow. In the male the legs and cephalothorax are more orange and the abdomen is less gray and the markings indistinct. The palpal organ is one of the simplest in this family and the shape of the palpus very peculiar, the tibia lapping over the tarsus half its length.

This spider is found from the White Mountains to Connecticut, on bushes in summer. Adult males and females in Danvers, Mass., June 30th. I have not seen its web.

Lasæola Simon.

Arachnides de France, vol. v.

Cephalothorax short, wide and high, nearly straight in front and inclined behind. Upper eyes large, equidistant or the middle pair farthest apart. Anterior eyes in a line curved strongly backward, the middle much the largest, wide apart, but almost touching the lateral eyes and raised on a slight ridge which projects forward. The lateral eyes are united in pairs. Abdomen high, rounded or oval, sometimes pointed behind beyond the spinnerets. Feet 1, 4, 2, 3, or 4, 1, 2, 3.

Lasæola cancellata.

Theridion cancellatum Hentz.

PLATE V, FIGURES 4, 4a.

The whole length is 1.5^{mm}. The cephalothorax is oval, about two-thirds as wide as long. The front middle eyes are the largest and are nearly twice as far apart as the hind middle eyes. The abdomen is rounded in front and widens backward for two-thirds of its length, where it abruptly narrows into a short hump that extends backward beyond the spinnerets. The cephalothorax is dark gray or black. The abdomen has several transverse white marks across the back and various whitish marks each side, the rest being black and gray in small spots of irregular shapes. The front legs are twice as long as the second or fourth and the patella, tibia and end of femur are gray, darker at the joints. The other legs are white with black rings. The palpi are colored in the same way and thickened at the ends. I have only one specimen, from New Haven, Conn., under a stone, April 3, 1881. Hentz describes it from Alabama.

Euryopsis Menge.

These are short and stout spiders, marked with black and silvery white. The cephalothorax is short and wide. Head narrow and high. Upper eyes nearly the same size and equidistant. Front row curved with the middle eyes larger than the others and farther apart. Abdomen short and wide, pointed toward the spinnerets. Mandibles small. Feet slender, 4, 1, 2, 3. Palpi of female slightly thickened at the end.

Euryopsis funebris (Hentz).*Theridion funebre* Hentz.

PLATE V, FIGURES 6 TO 6b.

Length about 3^{mm}. Cephalothorax as wide as long. Front middle eyes larger, farther apart and farther forward than the others. Fig. 6a. Mandibles and maxillæ small. Abdomen flat and in the middle nearly as wide as long, truncated in front and tapering to a point behind. The legs are 4, 1, 2, 3. The general color is black or dark gray. The cephalothorax is yellowish gray, black about the eyes. The legs and palpi are light yellow with black rings on the tarsi and black stripes along the sides of the other joints connected here and there by grayish rings. The abdomen has a bright silver white stripe around the hinder half. Inside this the color is black, broken by light spots in the middle of the forward part. The sternum and middle of the abdomen are black. The male is slightly smaller and has a smaller abdomen and longer legs. The palpi of the males have the tarsus rounded and the tibia wider than long. The palpal organ has a short tube at the end supported by a process of about the same length, both resting in a groove at the end of the tarsus. Fig. 6b.

Mt. Washington, N. H.; Swampscott, Mass.; Mt. Tom, Holyoke, Mass.; New Haven, Conn. Hentz had it from Alabama.

Euryopsis argentea, new.

PLATE V, FIGURE 5.

Of this I have only young specimens. They are about 2^{mm} long. The abdomen is shaped much as in *funebre*, pointed behind and truncated in front, black with five or six pairs of white spots along the middle and others at the sides. The cephalothorax is not so much widened as in *funebris*. The forward half is black, while the rest, which is nearly covered by the abdomen, is light yellow, almost white. The legs are light yellow. The eyes are more nearly equal than in the other species, though the front middle pair are larger than the others.

Beverly and Milton, Mass., and New Haven, Conn. The largest were found in May, the others in winter, so that it probably matures in summer.

Spintharus Hentz, Boston Journal of Nat. Hist., vol. vi, 1850.

Cephalothorax short and round. Eyes nearly equal, the hind middle pair twice as far apart as the front middle. Abdomen long, narrowed behind and widest a little in front of the middle. Legs of 1st and 4th pairs equal and twice as long as the second pair.

Spintharus flavidus Hentz, Boston Journal Nat. Hist., vol. vi.

PLATE V, FIGURE 7.

About 4^{mm} long. Cephalothorax nearly circular, hind middle eyes twice as far apart as the front middle pair. Abdomen widest one-third its length from the front, tapering behind. The cephalothorax and legs are light yellow. Abdomen yellow below and at the sides. On the back it has two lateral white stripes and between these on each side a bright red band which becomes lighter toward the middle. Fig. 7. The middle of the abdomen is gray with two or three pairs of white spots, between which the red bands nearly meet. The first and fourth pairs of legs are twice as long as the second pair. The tibiae of the first and fourth legs are bright orange.

I have this from New Haven; and from Boston, S. Henshaw. Hentz found it in Alabama.

Ulesanis L. Koch.

Arachniden Australiens, pp. 242, 245.

Stegasoma Cambridge, Proc. Zool. Soc., London, 1873 and 1879.

Oroodes Simon, Mem. Soc. Roy. Liege, 2d series, vol. v, p. 127; and Arachnides de France, vol. v.

These are small spiders related to *Argyrodes* and *Euryopis*. The head is narrow and much elevated in both sexes. The abdomen is higher than long and extends forward over the thorax to the head. It is raised into a series of humps which are colored so as to resemble a seed or grain of dirt. A species is found in Europe and described by Simon under the name *Oroodes paradoxus*.

Ulesanis americana, new.

PLATE VI, FIGURES 1 TO 1g.

This little spider resembles a seed or lump of dirt. It measures 1.5^{mm} in length and about the same in breadth and height. The abdomen covers the cephalothorax nearly to the eyes. It has a prominent hump in the middle of the back and four or five others behind. Figs. 1, 1a. The ground-color of the abdomen is light yellow. It has a transverse brown stripe each side of the middle hump and

various other brown spots in front and at the sides. The abdomen is nearly covered by circular brown spots around the bases of the hairs, and among them are rows of larger and darker spots which mark the ends of muscles running through the abdomen. The thorax is as wide as long, but the head is narrow and twice as high as the thorax. The cephalothorax is dark brown above and below. The sternum is as wide as long and the fourth pair of legs are wide apart. Fig. 1*d*. The palpal organ has a long tube which starts at the middle of one side, passes round the base and to the outer end, where it is supported by a large tooth and several smaller appendages.

Beverly and Danvers, Mass., and New Haven, Conn., swept from bushes.

Pholcomma Thorell, Genera of European Spiders.

This genus was separated from *Theridium* by Thorell, for *P. gibbum* of Europe. This species has the hard skin on the back of the abdomen and around the spinnerets and respiratory openings as in *Ceratinella*. The body is short and round and the abdomen hairy. The eyes have an arrangement much like *Pholcus*, the front middle pair being very small. In the species which I here refer to this genus the eyes are all nearly of the same size. The abdomen has the hard pieces on the back and under side, at least in the males. The back is covered with scattered stiff hairs. The sternum is short and wide behind. The palpal organs of the males are *Theridium*-like, as in the European *P. gibbum*, and not like *Ceratinella*.

Pholcomma hirsutum, new.

PLATE VI, FIGURE 6.

About the size of *Ceratinella letabilis*. The cephalothorax is yellowish brown, alike in both sexes. The sternum is the same color, and unusually wide at the hind end. The legs are yellow-brown, somewhat lighter than the thorax. The abdomen is whitish, covered with scattered long brown hairs. The males only have a hard spot on the back of the abdomen, as in *Ceratinella*. In some specimens the abdomen has some gray spots on the under side. The epigynum is slightly raised and shows the spermathecae through the skin. The palpal organs resemble those of *Theridium*. Figs. 6*e, f, g*. The tarsal hook is wanting. The tube is slender and is supported at the end by a short grooved appendage, which rests in a notch in the edge of the tarsus.

Common on Mt. Carmel, Hamden, Conn.; and found in the neighborhood of New Haven.

Pholcomma rostratum, new.

PLATE VI, FIGURE 5.

About 1^{mm} long. Cephalothorax almost as wide as long. Abdomen oval, extending over the thorax to the dorsal groove. The upper half of the abdomen is hard, as in *Ceratinella*, and covered with coarse stiff hairs, and there are also hard places around the stem of the abdomen and the spinnerets. The cephalothorax is very dark brown; the abdomen reddish brown above and darker on the thin skin at the sides. The legs are dirty brown, lightest toward the end. The cephalothorax is flat, but the head of the male is twice as high as the thorax behind it, and has a horn extending forward beyond the base of the mandibles, and having on its tip a bunch of hairs with flat, fan-shaped ends. The palpal organs have no resemblance to *Ceratinella*. The tibia is widened at the end and has two stout bristles on the under side. Fig. 5*a*. The tube of the palpal organ is stout, and coils around the end of the tarsus to a large soft appendage which supports it at the end.

A few specimens of both sexes under leaves at Waltham and Wattertown, Mass.

Pholcus Walck.

Pholcus phalangioides Fuessl.

PLATE VI, FIGURES 2, 2*a*.

This species is common in cellars and dark corners in rooms, but I have never seen it away from houses. It is readily distinguished by its long legs and large size from other cellar spiders. The body, in full-grown females, may be 7^{mm} or 8^{mm} long, and the front legs 4.5^{cm} to 5^{cm} long, though both sexes often mature much smaller. The color is pale, almost white, with pale gray spots on the middle of the thorax, the ends of the leg joints, and sometimes in pairs on the abdomen. On the back of the abdomen there is usually a dark transparent band over the dorsal vessel. The hairs are small and thinly scattered and light brown in color. The cephalothorax is nearly circular. The part of the head bearing the eyes is raised, and in the males separated by a deep constriction from the rest of the head. The abdomen is cylindrical except when swelled out in the middle by food or eggs. The front middle eyes are small and close together. The other eyes are in two clusters on each side of the

head. The maxillæ are inclined inward toward the lip. The mandibles are short, about two-thirds the height of the head, and have a prominent tooth on the inner corner. The male palpi are large and complicated. The tibia is swelled out almost spherical. The tarsus is round, with a long process on one side extending beyond the palpal organ. The bulb is round, and has beside the thin transparent tube a small stocking-shaped process and a larger blunt one roughened on the convex surface. Fig. 2*a*. The second joint of the palpus next the maxillæ has a tooth on the outer side about as long as the joint. The femur has also a blunt tooth near the middle on the under side.

This is a common European house spider, and is probably imported here. I have it from eastern Massachusetts; Albany, N. Y.; and New Haven, Conn. It builds a large web, consisting of a small, loose, flat sheet, from which irregular threads lead in all directions. When disturbed it hangs down by the legs as far as possible, and swings its body round in a small circle so rapidly that it cannot be seen distinctly. In the early part of summer the females lay their eggs in a very thin cocoon, through which they are plainly seen, and carry them about in their mandibles until the young hatch.

Spermophora Hentz.

Spermophora meridionalis Hentz.

PLATE VI, FIGURE 3.

This resembles a young *Pholcus*. It is about 1^{mm} long, with the front legs 5·5^{mm}. Color white, with pale gray spots on the thorax, and in two or three pairs on the abdomen. The six eyes are in two clusters like the lateral eyes of *Pholcus*. The cephalothorax is round as in *Pholcus*, but the abdomen is shorter and round, nearly as in *Theridium*, and covered with long fine hairs.

All my specimens are females found in closets and under furniture. I have not seen the web.

Salem and Boston, Mass., and New Haven, Conn.

Scytodes.

Scytodes thoracica (Latr.) Thorell, Synonyms of European Spiders.

Scytodes cameratus Hentz, Boston Journ. Nat. Hist., vol. vi.

PLATE VI, FIGURES 4, 4*a*.

Length of female 5^{mm} to 6^{mm}. Abdomen round. Cephalothorax very high behind and sloping forward to the mandibles. Cephalothorax light yellow with black markings of irregular shape in pairs.

Fig. 4. Legs light yellow with black rings, three on the femur, and three on the tibia. The abdomen is white with five or six pairs of black spots along the middle, from which lines of irregular spots extend obliquely down the sides. Beneath the abdomen is spotted and there are black spots on the sternum in the middle and at the bases of the legs. The mandibles and maxillæ are very small. There are only six eyes. The middle pair are close together near the front edge of the head over the mandibles. The lateral eyes are higher and farther back. The male differs but little from the female. The male's palpi are stouter than the female's. The tarsus has a long process on the upper side. The bulb is round with a narrow portion extending as far as the tarsal process and there narrowing into a fine long tube. The whole palpal organ is as long as the rest of the palpus.

This is another house spider, perhaps imported from Europe. It is found in cellars and shaded corners in rooms.

Ceratinella.

Ceratina Menge, Preussische Spinnen.

This genus, like *Pholcomma*, has the upper part of the abdomen thick and hard, and hard spots around the pedicel and the spinnerets, but this sometimes is only found in one sex. The cephalothorax and abdomen are both short and round. The heads of the males are usually higher than those of the females and in some species very large and raised into humps. The palpal organs are much alike throughout the genus. The tube is divided into two parts, appearing as if broken near the middle, and the corners near the break are sometimes lengthened into teeth of various shapes. At the base of the bulb is a long hard process, pointing backward. The tarsal hook is small and simple. The tibial hook is large and extends outward from the palpus, varying in shape according to the species. The length of the patella varies greatly in different species. All the species are very small, 1 to 3^{mm}, and are found either under leaves or in summer on low plants.

Ceratinella emertoni.

Erigone emertoni Camb., Proc. Zool. Soc. London, 1874.

PLATE VII, FIGURE 1.

This is of the same size and color as *C. fissiceps*, usually a little lighter orange with a smaller black mark on the head which seldom extends backward on the middle of the thorax as in *fissiceps*. The

head of the male is high and rounded and without humps, and the eyes are near each other on the upper part. Fig. 1. The palpal organ is very distinct from the allied species. The tube is like that of *fissiceps*, but the tooth at its base is much stouter and blacker and the upper portion of the bulb is stouter and blacker and has a long black tooth that extends nearly to the base of the slender tube. The tarsal hook is short and stout. Plate 7, figs. 1*a*, 1*c*. The epigynum is darker and wider than in *fissiceps*. Fig. 1*d*.

Eastern Massachusetts; Mount Tom, Mass.; New Haven, Conn., under leaves in winter and on low plants in summer.

Ceratinella fissiceps.

Erigone fissiceps Camb., Proc. Zool. Soc. London, 1874.

PLATE VII, FIGURE 2.

Length, 1.5^{mm}. Color light orange, the thickened circle on the abdomen very distinct, and more deeply colored than the parts around it. The head is black and a black line extends backward half the length of the thorax. The latter mark is found in both sexes and distinguishes the females of this species from *emertoni*, in which the black color is confined to the neighborhood of the eyes.

The head of the male is extended forward over the mandibles, carrying the front middle eyes, and has a hump above it with the hind middle eyes. Figs. 2*a*, 2*b*. The female has slight humps on the head. The epigynum is narrow and easily distinguished from that of *emertoni* which it resembles in size and color. The palpal organ is shown in fig. 2*c*. The slender spiral tube, with a black tooth at the base, resembles that of *C. alticeps*. The tibial hook is slender and has usually a short tooth near the base. Fig. 2. The tarsal hook is nearly straight and lies against the tarsus as in the two nearest species.

Eastern Massachusetts; Mt. Tom, Mass.; New Haven, Conn., in low bushes, May to August, and under leaves in winter.

Ceratinella bulbosa, new.

PLATE VII, FIGURE 3.

This species resembles *fissiceps* so closely that for a long time I thought it a variety of that species. The colors are the same and it is of the same size or slightly larger. The two humps of the head are swelled at the top and black. The lateral pairs of eyes are also raised on smaller humps on each side of the head. Figs. 3, 3*a*. The

male palpi resemble closely those of *fissiceps*, but the tibial hook is twice as wide, darker colored and has longer and sharper teeth at the end. Fig. 3c. I have not yet separated the females from those of *fissiceps*.

I have two males taken at different times in Pine Swamp, New Haven, Conn., under leaves in winter.

Ceratinella pygmæa, new.

PLATE VII, FIGURE 4.

The only specimen is little over 1^{mm} long. The colors are very light. Cephalothorax orange-yellow with a dark spot around the eyes from which a dark line tapers backward to the dorsal groove. The hard part of the abdomen is orange-yellow, the rest white. The head of the male is narrow and projects forward over the mandibles, but is not much elevated. Though the spider is smaller than *fissiceps*, the male palpi are as large as those of that species and resemble them very closely. The tibia, however, is larger and has the terminal tooth longer and sharper. The tube of the palpal organ is stouter than in *fissiceps*. The patella is nearly as long as the femur.

One male under leaves in Pine Swamp, New Haven, Conn., in October.

Ceratinella atriceps (Camb.).

Erigone atriceps Cambridge, Proc. Zool. Soc. London, 1874.

PLATE VII, FIGURES 5 TO 5d.

Length of male 1.6^{mm}. Cephalothorax orange, darker toward the humps, which are nearly black, the dark color sometimes extending backward on the middle line nearly to the dorsal groove. Abdomen dark gray, in alcohol greenish. The thickened spot on the back is often indistinct and sometimes absent, but when present is orange colored, darkened by the black hairs over it. The legs are colored like the abdomen, darker toward the tip. The ♂ palpi are lighter than the legs, except the tip which is almost black.

The head of the male is extended forward beyond the mandibles and has a hump above, bearing the posterior middle eyes. Fig. 5. The female has slight projections of the head at the same points. Fig. 5a. The ♂ copulating organs resemble closely those of *fissiceps*. Fig. 5b. The tibial hook is shorter and more curved.

May, June, July, on low bushes. Winter, in leaves on the ground. Mt. Washington, N. H., 4000 feet up; Eastern Massachusetts, common; New Haven, Connecticut.

Ceratinella læta (Camb.)

Erigone læta Cambr., Proc. Zool. Soc. London, 1874.

PLATE VIII, FIGURE 1.

Length 1.6^{mm}, slightly larger than *lætabilis*; both these species are found under leaves and probably live near the ground all the year, not spinning high like *fissiceps*. Color dark brown. The thickened spot only on the abdomen of the male. The abdomen of the female is sometimes almost black. Other individuals have a light stripe along the middle of the back with three or four cross stripes. The head is high behind the eyes, especially in the males. The tibia is short and the tibial and tarsal hooks both long. The tube is stout and black, broken in the middle, where each half has a short tooth.

Eastern Massachusetts; Mt. Tom, Mass.

Ceratinella lætabilis.

Erigone lætabilis Cambridge, Proc. Zool. Soc. London, 1874.

PLATE VIII, FIGURE 2.

Length, 1.5^{mm}, a little smaller than *C. læta*. Cephalothorax and sternum dark brown, legs dark orange. Thickened parts of the abdomen dark orange, brown, thinner parts gray, broken by lighter irregular spots. In the females, where the thickened circle on the abdomen is wanting, the whole back is dark gray with lighter patches and thickened spots at the ends of the vertical muscles. The head is slightly elevated behind the eyes, a little more in the male than female. The male has the thickened circle on the abdomen very hard and distinct. The female usually wants it altogether. The palpal organs distinguish this easily from *C. læta*. The tibial hook is short and wide and curved strongly inward. Fig. 2*b*. The tube is bent sharply at the middle as usual, and the outer edge of the basal half projects as a very distinct tooth. Fig. 2*a*.

The females are less easily distinguished from *C. læta*. They are a little smaller and lighter colored and the epigynum, Fig. 2*d*, has its opening shorter than the other species.

Mt. Washington, N. H., moss near Halfway House; Eastern Massachusetts; New Haven, Conn.

Ceratinella brunnea, new.

PLATE VIII, FIGURE 3.

Size of *C. lutea*, but darker colored. Cephalothorax and thick spot on the abdomen dark brown, the thick spot present in both sexes. Legs lighter but not so bright orange as in other species. Abdomen below and at the sides dark gray.

The sexes much alike. The abdomen of ♂ slightly smaller and the thickened circle larger than in ♀. Head very little elevated in either sex. The tibial hook of the male palpi is long, Fig. 3, with a recurved tooth at the end. The palpal tube is very large, colored black, and with only a slight break in the middle. Fig. 3*a*. The epigynum has a wide oval opening.

Mt. Washington, from Glen to highest trees. Salem, April 20, under stone. Saugus marsh, Oct. 28. New Haven, Conn., winter.

Ceratinella minuta, new.

PLATE VIII, FIGURE 4.

About 1.2^{mm} long. One of the smallest spiders. Color uniform reddish brown on the cephalothorax and legs and the thickened spot on the abdomen. The thick spot is common to both sexes. The palpal organs have the tube very long, Fig. 4*a*, with only slight teeth at the break. The tibial hook is moderately long and sharp, and there is a peculiar blunt spur on the inner side of the tibia.

Common at New Haven, Conn., under leaves in winter. One male from West Quincy, Mass.

Ceratinella micropalpis, new.

PLATE VIII, FIGURE 5.

This species has the same colors as *C. minuta* and is a little larger, but the palpi are smaller. The shape of the tarsus is much like that of *C. minuta* but the hook is shorter. The tube is not more than half as long as in *minuta*. Pl. 8, figs. 5, 5*a*, 5*b*.

Only one male from West Quincy, Mass.

Ceratinopsis, new.

Except *interpres*, these spiders resemble *Ceratinella*, but do not have the thickened spot on the abdomen. Their colors are partly the same orange-red common in *Ceratina*, and their palpal organs have a similar structure, though the break is not so plain and the end of the tube is stouter. In *interpres* the legs are longer and the whole

appearance resembles *Cornicularia*. The head is high in front in all the species, and the eye-area is wide and black or darker than the rest of the cephalothorax.

Ceratinopsis interpres (Camb.).

Erigone interpres Camb., Proc. Zool. Soc. London, 1874.

PLATE IX, FIGURE 1.

This spider has a length of over 2^{mm}. The cephalothorax is bright orange with black around the eyes. Fig. 1. The legs are light yellow and long and slender, as in *Bathypheutes*. The abdomen is yellow or light orange, with black around the spinnerets. The head of the male is very high and has stiff hairs between the eyes. The male palpi are large, and light orange and black. The tarsus is nearly straight on the forward edge, and has a sharp, recurved, black point. The tarsal hook is short and has a few long hairs on its middle portion. The other parts of the palpal organ are large and strong. The epigynum is narrower than in *nigriceps* and runs farther forward.

Adult male and female and several young on Mt. Tom, Holyoke, Mass. Common at New Haven, Conn., on low bushes in summer.

Ceratinopsis nigriceps, new.

PLATE IX, FIGURE 2.

Length 1.5^{mm}. Cephalothorax orange with a well-defined black spot around the eyes, covering nearly the whole head. The head is wider in the females than the males, and in both sexes the lateral pairs of eyes are slightly raised on tubercles, giving the head a square appearance. The legs and palpi are light yellow, the latter darker. The abdomen is light yellow, slightly reddish toward the end, especially in the male. The sternum is orange-brown without the roughness of *laticeps*. The palpal organ is large with a large black tube like *nigripalpis*. The tibial hook is short and turned up toward the tarsus. Fig. 2*a*, 2*b*.

New Haven, Conn., and Dedham, Mass.

Ceratinopsis laticeps, new.

PLATE IX, FIGURE 3.

Length 1^{mm}. Thorax large and head wide, elevated in the middle over the eyes, and with a rounded hump in front below the eyes, Fig. 3*a*, which are widely separated. The cephalothorax is bright orange-brown, darker in front and black around the eyes.

Sternum orange with dark irregular markings. The abdomen is light yellow above and reddish at the hinder ends and sides. The legs are light yellow and the palpi are somewhat darker. The tarsus and tibia of the palpi are large. The tarsal hook has two strong black teeth. The palpal organ is much like *nigriceps*, but the tube is smaller. Fig. 3*b*.

I have two specimens from Danvers, Mass., and New Haven, Conn., both shaken from low bushes.

Ceratinopsis nigripalpis, new.

PLATE IX, FIGURE 4.

Length 1.5^{mm}. Cephalothorax orange except around the eyes, where it is black, extending backward a short distance on the middle line of the head. The femora are orange like the thorax, but the rest of the legs is gray. The terminal joints of the palpi are black. The abdomen is gray, lighter beneath. The palpal organ has a large black tube. The tibia of the palpus is short and has a short toothed hook. Fig. 4*b*. The tarsal hook is short and strongly curved.

Two males from New Haven, Conn., under leaves, in October.

Grammonota, new.

The species of this genus have the abdomen marked with light spots, in some forming a distinct pattern like *Amaurobius*. The head of the male is more or less raised behind the eyes. The palpal organ resembles that of *Ceratinella*.

Grammonota pictilis.

Erigone pictilis Camb., Proc. Zool. Soc. London.

PLATE X, FIGURE 4.

1.5^{mm} long. Cephalothorax dark yellow-brown. Legs lighter dull yellow. Abdomen gray with light yellow spots in two rows, the forward spots somewhat connected together. Fig. 4*a*. The head of the male is elevated into a rounded hump behind the eyes and a slight one between the front and hind eyes, both with hairs longer than the rest of the head. The palpal organs are of the same type as *Ceratinella*. Fig. 4*b*. The end of the tube is very long and slender, and coiled up in three or four spirals. The tibia has a sharp straight tooth on the outer side under the tarsal hook. The epigynum has very long tubes twisted in a double spiral, Fig. 4*e*, in correspondence with the long tube of the palpal organ.

This is a common spider on juniper and other evergreen trees. Portland, Me.; eastern Massachusetts; Mt. Tom, Holyoke, Mass.; New Haven, Conn.

Grammonota ornata.

Erigone ornata Camb., Proc. Zool. Soc. London.

PLATE X, FIGURE 3.

Slightly smaller than *pictilis*, but with similar markings on the abdomen. Cephalothorax dark brown. Head of male slightly elevated behind the eyes, but no distinct hump, the elevated parts with similar stiff hairs as in *pictilis*. The palpal organ has the tube much shorter, and the tibial hook is curved forward and forked. Only males.

Near Boston, under leaves, not so common as the last.

Grammonota inornata, new.

PLATE X, FIGURE 5.

Length 2^{mm}. Cephalothorax dark brown, abdomen dark gray. Legs yellowish gray. Head of male slightly elevated behind the eyes. Male palpus with a short smooth hook on the tibia. The tarsal hook is large and so is the spur at the inner end of the palpal organ. The tube is stout and dark colored and the upper bend extends beyond the end of the palpus.

Two males from Saugus, Mass., under leaves, and two from New Haven, Conn., one under leaves, and one on a fence in October. Large numbers under dry eel-grass on the beach at Wood's Holl, Mass.

Spiropalpus, new genus.

This spider resembles closely those of the last genus, but has entirely different male palpi, with the tube long and stiff and coiled in a flat spiral, partly covered by the supporting appendage. The tibial hook is long and twisted.

Spiropalpus spiralis, new.

PLATE X, FIGURE 6.

Length, 2^{mm}. Somewhat lighter colored than the last. Cephalothorax, dark brown, lighter behind toward the abdomen and nearly black on the head. Abdomen dark or light gray, legs yellow. The sexes are alike in size and color. The epigynum is three-lobed with the small central lobe extending a little beyond the others. The dark brown spermathecae show through the skin. The palpal organ is very large, the tube is stiff and coiled in two large spirals which extend

over the edges of the tarsus, each side. A wide thin appendage starts near the base of the tube and lies over it as far as the end of the tarsus. The tibial hook is half as long as the tarsus and is bent toward the tarsal hook and appears twisted at the end.

Danvers, Essex and Cambridge, Mass., and New Haven, Conn.; in the latter place abundant on city fences in November.

Cornicularia Menge.

The spiders of this group are placed by Menge in several genera. The species which he refers to *Cornicularia* seems to be very near our *C. minuta*. Most of our species are large and brightly colored. The males and females differ but little. The males have a hump or horn on the front of the head between the eyes, and usually ornamented by flat stiff hairs. In several species there are two horns, the lower one being small and partly concealed by the upper. The male palpi have a stiff black tube curved once round the end of the bulb and supported by a thin appendage near the tip. The tarsus is round with a small, smooth tarsal hook at the base. The tibial hook is large and extends over the back of the tarsus. In several species it is a smooth pointed hook, but in others it has a smaller point on the inner side, or is modified in various ways according to the species. The epigynum has a wide and short middle lobe with openings at the corners. The cephalothorax is usually long, narrowing gradually toward the head. The eyes are nearly equal in size and close together, except where displaced by the horns of the males.

Cornicularia directa.

Erigone directa ♂ and *Erigone provida* ♀ Camb., Proc. Zool. Soc. London, 1874 and 1875.

PLATE XI, FIGURE 1.

The males and females of this species were described by Cambridge at different times, without opportunity to compare them, and were naturally supposed to be distinct species. I have since found both sexes together in considerable numbers, and am now sure that they belong together. The length is about 2^{mm}. Cephalothorax uniform chestnut-brown, from almost black to light yellow in different individuals. Sternum same color. Legs lighter. Abdomen gray with the muscular spots light. Both sexes about the same size and color. The male has two horns between the eyes, the lower slender and about half as long as the upper and lying close under it. The tibia of the male palpus has a smooth pointed hook over the tarsus.

Eastern Massachusetts; Mt. Tom, Mass.; Providence, R. I. In winter under leaves, and on fences in autumn.

Cornicularia tibialis, new.

PLATE XI, FIGURE 2.

This is a little smaller than *directa*. The colors are the same. The horn is shorter and thicker. The tibia of the male palpus is nearly as large as the tarsus. The hook has a large tooth in the middle, which is roughened on the edge and inside. Fig. 2a. Both sexes are alike in size and color.

From Mt. Tom, Holyoke, Mass.

Cornicularia communis, new.

PLATE XI, FIGURE 3.

Cephalothorax dark orange, darkened with brown toward the head and nearly black around the eyes. Legs brighter orange. Palpi same color, except the tibia and tarsus which are dark brown. Abdomen black with the muscular marks light yellow. Under side of abdomen same color. Sternum dark orange like the back of thorax.

Horn of male pointing forward, about as long as the distance between the front and back middle eyes, widened at the end where it is covered with stiff hairs directed upward and backward. Although it appears single, the horn really consists of two, pressed closely together, the upper or posterior one forming the greater part of it and bearing the terminal hairs. The anterior horn is entirely covered above by the other.

Mt. Washington, New Hampshire, and Eastern Massachusetts, under leaves; New Haven, Conn.

Cornicularia indirecta (Camb.)

Erigone indirecta Camb., Proc. Zool. Soc. London, 1874.

PLATE XI, FIGURE 4.

Cephalothorax and legs bright orange. Head black. Abdomen lighter orange than thorax, both above and below. This species differs from *communis* in the color of the abdomen and in having the dark spot on the head darker and more definite and the palpi and mandibles darker. Both sexes agree closely in size and color. The hinder middle eyes are farther back than in *communis*.

Horn of male like that of *communis*, Fig. 4, with recurved hairs on the end and along the upper side. The palpi of the males are much alike in these two species.

Eastern Massachusetts.

Cornicularia brevicornis new.

PLATE XI, FIGURE 5.

Length about 2^{mm}. Cephalothorax orange, a little darker on the head. Abdomen dark gray. Legs yellow. Palpi yellow with the hard parts near the end dark brown. The horn of the male is double, as in *directa* and *communis*, but much lower and shorter. The palpal organs differ but little from those of the other species. The plainest differences are the generally dull color and the short horn.

Two males from Pine Rock, New Haven, Conn.

Cornicularia minuta, new.

PLATE XI, FIGURE 6.

About 1.5^{mm} long. Color yellowish gray, almost white. One from the White Mountains, apparently of the same species, has the cephalothorax and legs brownish yellow and the abdomen almost black, much like *directa*. The horn is short, hardly longer than thick, and slightly divided on the end, where it has a tuft of short, stiff hairs. The tibia of the male palpus has the usual pointed hook, at the base of which is a shorter parallel process, covered at the end with stiff, black bristles. Figs. 6c, 6d. The palpal organ resembles those of the larger species.

Males only, from Mt. Carmel, Hamden, Conn., and Mt. Washington, N. H.

Cornicularia pallida, new.

PLATE XI, FIGURE 7.

2^{mm} long. Cephalothorax orange, with black around the eyes, extending backward along the middle line to the dorsal groove. The head is higher in the male and has a short hump about as high as wide between the eyes, Fig. 7, on which are stiff hairs, as in other species. Legs and palpi yellow or light orange. Abdomen white, with light gray hairs. Spinnerets and a ring around them gray or black. The palpal organs and the tibial hooks are much as in the other species. Fig. 7a. The only species with which this is likely to be confounded is *directa*, and from this it differs in both sexes in the lighter color, especially of the abdomen and legs, and the closer position of the eyes and shape of the head in males.

New Haven, Conn.

Cornicularia tricornis, new.

PLATE XI, FIGURE 8.

This resembles Menge's *Phalops forcillatus*, but the peculiar hump is much shorter and the upper eyes farther forward. The length is 1.5^{mm}. Cephalothorax dark brown, not much darker toward the head. Palpi same color. Legs orange. Abdomen dark gray or black. The lower horn is much as in *pallida*, with a few stiff bristles. The upper horn is forked at the forward end with bristles on the outer edges. The head behind the horn is abruptly raised, and carries the upper middle eyes. There is a sharp groove on each side of this ridge. Figs. 8, 8a.

Three males from Mt. Washington, N. H., June, 1877.

Cornicularia auranticeps, new.

PLATE VIII, FIGURE 6.

Smaller than the other bright colored species, about the length of *directa*, but stouter. Cephalothorax uniform bright orange. Legs orange toward the body, blackish toward the tips. Abdomen dark bluish black. The horn of the male is short and points upward, spreading into two short lobes at the tip, covered with short, recurved hairs. The palpal organ is much like that of the other species, but the tibia has two long, blunt teeth, Figs. 6, 6b, very different from the others.

Eastern Massachusetts and White Mountains, New Hampshire.

Cornicularia clavicornis, new.

PLATE VIII, FIGURE 7.

A small, dark colored species, about 2^{mm} long. Cephalothorax dark brown. Abdomen dark gray. Legs orange-brown. Head of male with a short horn swelled at the end. The tibial hook is long and has a smaller hook parallel and close to it. Fig. 7a.

One male from Mt. Washington, N. H.

Lophomma Menge.

The females resemble *Lophocarenum* and *Cornicularia*, but the males have the mandibles smaller and the head extended forward beyond them and divided into two humps, one carrying the front middle eyes and the other the hind middle pair. The front middle eyes are close together on the forward end of the hump, and over them are a few stiff hairs directed upward. The hinder hump has a crest of hairs directed forward. The tibia of the male palpus is very

long on the upper side, nearly covering the tarsus. The end has a long hook bent sidewise. Pl. X, figs. 1*b*, 2*e*. Menge includes in this genus several species with two humps on the head, but which have the holes behind the eyes and otherwise appear to belong with *Lophocarenum*.

Lophomma cristata.

Erigone cristata (Blk.) Thor., Synonyms of European Spiders.

Lophomma bicorne Menge.

PLATE X, FIGURE 1.

2^{mm} long. Cephalothorax dark brown. Abdomen dark gray. Legs yellowish brown. Both sexes alike in size and color. The eyes in the female are large and in two rows at about equal distances from each other. The head of the male is much raised and the lower part extended forward, Fig. 1, forming two horns. The eyes are smaller than in the female. The hind middle pair is on the upper horn, the front middle pair on the lower horn, and the side pairs separated far from them, below the hind pair. The male palpi have the tibia expanded as much as the tarsus, and a long hook with a sharp point bent across the end. Fig. 1*b*. The palpal organ is peculiar in having the tube short and not coiled as in most of the neighboring species. When in use this appears to be supported by a strong process near the end of the palpus and perhaps, also, by the tibial hook, which could be brought over it by a slight revolution of the tarsus.

I have specimens from Montreal, Canada, under leaves, in winter; Boston, Mass., on fences, in October; and Cambridge, Mass., under leaves.

Lophomma elongata, new.

PLATE X, FIGURE 2.

Same colors as *cristata*, but smaller, about 1.5^{mm} long. In the female the front middle eyes are more prominent and farther from the side pairs than in *cristata*. In the male the lower part of the head carrying the front middle eyes is much as in *cristata*, but the upper horn or hump is larger and lower and the eyes on the top of it are farther apart. The male palpi have the tibia similarly expanded, but the hook is longer and wider. The tube of the palpal organ is short and curved.

Salem, near floating bridge; Boston, swamp at Clarendon Hills; and Mt. Tom, Mass., under leaves.

Lophocarenum Menge.

These spiders form the greater part of the genus *Lophocarenum* of Menge, although some species are included in his *Lophomma* and *Tmeticus*. By Blackwall and Cambridge they are placed either in *Neriene* or *Walckenaera*, and by other authors, with the other small spiders of this family, in *Erigone*. I include in this genus only those spiders which have cavities in the heads of the males, opening by holes near the eyes. Pls. 12, 13. The heads of the males are usually high and furnished with humps of various shapes, according to the species. The head of the female usually shows some traces of the hump, and they resemble the males in color and form, so that after the males are known the females can usually be identified. Nearly all the species are small, 1 or 2^{mm} long, and dull colored. Most of them are short and stout with short legs. They live under leaves or on low plants, though some species, as *L. florens*, are found on high bushes in summer. The palpal organs are of various shapes, but the tube is usually smooth and slender and the appendages small. The tarsal hook is small. The tibia is large and of various shapes, according to the species.

Lophocarenum castaneum, new.

PLATE XII, FIGURE 1.

2.5^{mm} long. Cephalothorax dark reddish brown. Legs orange-brown. Abdomen black. The back part of the head is abruptly elevated and carries the hind middle eyes on the front. Each side of this hump is a groove in which are the holes leading to horn-shaped cavities in the head. The palpal organs resemble those of *Cornicularia*. The tarsal hook, Fig. 1e, is curved outward and has a notch near the middle when seen sidewise. The tube of the palpal organ is long and supported at the end by a flexible process. Fig. 1c.

Only males, from Beverly, Swampscott and Milton, Mass.

Lophocarenum montanum, new.

PLATE XII, FIGURE 2.

A little smaller than the last species, but resembling it very closely. The cephalothorax is slightly narrower than in the last species, the hump is indented in front below the upper eyes. The color is yellowish brown on the cephalothorax and gray on the abdomen. The palpi are much as in *castaneum*. Figs. 2b, 2f. The female is colored like the male, but has no elevation on the head. The epigynum is short, with an oblique groove each side. Fig. 2g.

Mt. Washington, N. H.

Lophocarenum florens.

Erigone florens Camb., Proc. Zool. Soc. London, 1874.

PLATE XII, FIGURE 3.

This common species is the largest and most brightly colored of the genus. It is 2.5^{mm} long. The abdomen is bluish black, the cephalothorax, femora and palpi, bright orange, and the rest of the legs nearly black. The male has the head very high and slightly bilobed at the top of the hump. The hind middle eyes are nearly at the top and widely separated. The holes are just above and behind the lateral eyes. Fig. 3*a*. The male palpi are very large. The tibia has a long, flat hook, pointed at the tip. Figs. 3*d*, 3*e*. The tarsus has a hump on the upper side on which are a few stiff bristles. The tube is large and stiff and long enough to turn once around the palpal organ. It is supported at the end by a hard, twisted process. Fig. 3*e*. The head of the female is only slightly elevated at the back. The epigynum is large and open in the middle. Fig. 3*f*. The female is likely to be mistaken for *Cornicularia auranticeps*, but when full grown is larger and has the abdomen larger and thorax wider than the *Cornicularia*.

This is a very common spider in Eastern Massachusetts, on bushes in summer, but I have only found the adult male once, in June. Adult females are common through the summer. I have specimens from the White Mountains; Mt. Tom, Mass.; Albany, N. Y.; and New Haven, Conn.

Lophocarenum decem-oculatum, new.

PLATE XII, FIGURE 4.

This resembles *florens*, but is smaller and lighter colored. The cephalothorax and legs are yellow, the legs long, as in the male of *florens*, the abdomen dark gray. The hump of the male is as high as in *florens*, but the hind middle eyes are lower and closer than in that species and project forward as far as the lower middle pair. The holes in the hump are turned forward just above the side eyes, and look like an extra pair of eyes. Below the eyes there is a rounded forward projection of the head. The palpi of the male have a short truncated hook on the tibiae. The tube is long enough to turn once around the palpal organ and is supported by a large twisted appendage, corresponding to the twisted spine of *florens*. This species is very near *Walckenaera bifrons* Blkw., but the patella of the male palpus is longer, and the tibia smaller. The black tooth on the

upper side of the tibia is also smaller and has less prominent corners in *bifrons*.

One male, from Mt. Washington, in moss, among the highest trees.

Lophocarenum spiniferum (Camb.)

Erigone spinifera Camb., Proc. Zool. Soc. London, 1875.

PLATE XIII, FIGURE 1.

Length 1.5^{mm}. Cephalothorax dark yellow-brown. Abdomen dark gray, legs and palpi yellow or orange. All the colors light. Cephalothorax nearly as wide as long. Head of male high in front. The hump is small and folds forward just behind the eyes, forming a crease across the head, at the ends of which are two round holes, which do not extend into the head beyond the depth of the crease. Fig. 1*a*. The male palpi have a large hook on the upper side of the tibiae. The tube of the palpal organ is long and stiff and extends downward beyond the palpus, the length of the tarsal joint.

This is near the English species, *Neriene incisa* Cambridge, Trans. Linn. Soc., vol. xxvii, 1870.

Under leaves in swamps, in Beverly and Salem, Mass., in winter, and on fences on Boston common, in November.

Lophocarenum montiferum, new.

PLATE XIII, FIGURE 2.

About 2^{mm} long. Cephalothorax dark yellow-brown. Abdomen dark gray. Legs orange-brown. The male has a hump half as large as the rest of the cephalothorax, Figs. 2, 2*a*, containing large cavities, which open by holes on either side, as large as the eyes, and are connected by a deep crease which runs around the front of the hump. The front middle eyes are near together in the middle of the head, in front of the hump. The other eyes are in two groups at the extreme corners of the head. In the female the back of the head is considerably elevated, and the hind middle eyes farther apart than usual. Figs. 2*c*, 2*d*. The mandibles of the male are smaller than the female's and are curved apart at the tips. The palpal organs have a tube curved in a half-circle and supported at the end by a short sharp spine and a long soft appendage. Fig. 2*f*. The tibia has a large blunt tooth and a short sharp one above.

In maple swamps, Brookline, Mass.; and Salem, Mass., near the floating bridge.

Lophocarenum quadricristatum, new.

PLATE XIII, FIGURE 3.

This is a small species, 1.5^{mm} long, and dull colored. The head has a peculiar hump extending back nearly to the middle of the thorax. Figs. 3*a*, 3*b*. The middle of this hump is occupied by four clusters of flat bristles, and the hind eyes are crowded back over the holes in the side of the head. The side eyes are larger than the others, and the front pair of these larger than the hind ones. On the male palpi the tibial hook is turned toward the side. Fig. 3*c*. The palpal organ has a long tube as in *Corniculariu*.

One male, from Mt. Washington, above trees. This species is very near *Walckenaera diceras* Camb., and may prove to be the same species.

Lophocarenum longitarsus, new.

PLATE XIII, FIGURE 4.

Length 1.5^{mm}. Cephalothorax dark reddish brown. Legs orange-brown. Abdomen gray. The head of the male is wide and not much elevated, and there is hardly a trace of a hump. The holes are just behind the eyes and the dark brown conical cavities extending from them toward the middle of the head can be seen through the skin. The absence of a hump leaves the eyes nearer together than in most species. The mandibles are wide at the tip and have the tooth near the inner angles longer than the others. Fig. 4*b*. The tibia of the male palpus has the front edge hard and finely toothed and a large tooth on the inner corner. The tarsal hook is large and sickle-shaped, with three stiff hairs in the bend. The tarsus is long, and so is the palpal organ. The tube is slender and long enough to go around the end of the palpus.

One male, White Mountains, near Mt. Washington.

Lophocarenum pallidum, new.

PLATE XIII, FIGURE 5.

1.3^{mm} long. Cephalothorax yellowish brown, a little darker toward the head. Legs light yellow. Abdomen yellowish gray. The hump of the male is farther back than in most species, and has a deep groove on each side. The holes in the head are just back of the lateral eyes. Fig. 5. Seen from in front the head is about as high as wide, and has the shape of a triangle with rounded corners. The tibia of the male palpus is short and has a short hook turned inward. The tube

of the palpus is long enough to turn one and a half times around the palpal organ, and the supporting appendages are thin and wide.

White Mountains, near Mt. Washington.

Lophocarenum longitubus, new.

PLATE XIII, FIGURE 6.

Length, 1.5^{mm}. Cephalothorax yellow-brown. Legs yellow. Abdomen dark gray. The hump is rounded and does not extend far back on the head. The hind middle eyes are on the front of the hump. Each side of the hump is a horizontal groove, in the middle of which are the holes in the head. The tibia of the palpus has two prominent black teeth. The tarsus is irregularly shaped and truncated at the outer end. The tube is long and stiff, and bends around the flat end of the tarsus.

Three males from moss, east side of Mt. Washington.

Lophocarenum rostratum, new.

PLATE XIV, FIGURE 1.

Length, 2^{mm}. Color light brownish yellow on the cephalothorax and legs, and gray on the abdomen. It varies in different individuals, some having the abdomen almost black and the other parts proportionally dark. The hump of the male extends forward beyond the front of the head. Fig. 1a. The hind middle eyes are on the top of the hump near the middle. The holes are in oval grooves just back of the side eyes. The tibia of the male palpus has a long and slender hook as long as the tarsus. The tube of the palpal organ passes round it once, and is supported at the end by a stout spine. The female is much like the male, but has no trace of the hump on the head.

New Haven, Conn., under leaves in woods, common.

Lophocarenum scopuliferum, new.

PLATE XIV, FIGURE 2.

This is a small dull-colored species, 1.5^{mm} long. The head is elevated about as much as in *spinifera*, and the holes are in grooves above the side eyes. The male palpi have the tibia as large as the tarsus, which it partly covers. On its outer side is a row of long stiff hairs curved forward toward the end of the joint. The palpal organ is simple, all the parts being very small and short. The female has the head slightly elevated at the back part, and is about the same size and color as the male.

Cambridge, Waltham and Roxbury, Mass., under leaves.

Lophocarenum erigonoides, new.

PLATE XIV, FIGURE 3.

Length, 1.5^{mm}. Cephalothorax yellow-brown. Legs same color but lighter. Abdomen dark gray. Thorax and abdomen both low, and head but little elevated and slightly narrowed at the sides. Figs. 3, 3*a*. The holes are close behind the lateral eyes and are not in grooves. The tibia of the male palpus extends over the tarsus, and has an oblique black tooth at the end and a rounded lobe below it. The tarsal hook is short and wide like *Erigone*. The tube is coiled half round the end of the palpus, along with a slightly longer flexible appendage. Fig. 3*b*.

Beverly, Mass., E. Burgess.

Lophocarenum latum, new.

PLATE XIV, FIGURE 4.

This is a short and wide species. The cephalothorax is nearly as broad as long. The grooves on the sides of the hump extend obliquely backward from the lateral eyes, and have the holes at the lower end. The tibia is widened and has a rounded tooth half its width at the end. Fig. 4*b*. The tube and its support are both small. Fig. 4*c*.

One male, Watertown, Mass., under leaves in winter.

Lophocarenum simplex, new.

PLATE XIV, FIGURE 5.

A small species, 1.5^{mm} long. Lighter colored than most species. Legs and cephalothorax light yellow-brown. Abdomen gray. Head slightly elevated. Holes behind and above the lateral eyes in shallow grooves, a slight depression in the front of the head below the upper eyes. The male palpus has the tibia extending half its length over the tarsus, and has a small hook at the end. The tube and appendages of the palpal organ are short. Figs. 5*c*, 5*d*.

One male under leaves in a maple swamp near the floating bridge, Salem, Mass.

Lophocarenum depressum, new.

PLATE XIV, FIGURE 6.

Length, 2^{mm}. Colors the usual dull brown and gray. The legs in my specimen are dark brown, but are probably discolored by drying or dirty alcohol. The ♂ cephalothorax is very low for this genus, and the hump just behind the eyes is lower in the middle than at the

sides, where it widens slightly over the lateral grooves, in which are the holes in the head. The male palpus has the tibial hook straight and toothed on the inner side toward the tip. The tube of the palpal organ is very small and is supported by a stout smooth spine.

One male from Mt. Washington, N. H., in moss.

Lophocarenum crenatum, new.

PLATE XIV, FIGURE 7.

Length, 2^{mm}. Cephalothorax dark brown. Abdomen black. Legs orange-brown. The cephalothorax is very hard and solid above and below, without the usual soft space between the legs. The head portion is much elevated in both sexes but slightly more in the male, where it is narrowed up behind the eyes, and has the usual holes in shallow oval grooves. The edge of the thorax is scalloped between the legs. Fig. 7. The palpi of the female have the two end joints twice as thick as the others. The abdomen of both sexes is short and pointed behind. The male palpi are not much larger than those of the female. The tibial joint is wide and truncated on the upper side, and the tarsus is short and round. Fig. 7c. The palpal organ itself has a very short tube and appendages.

This was found twice in Beverly, Mass., under leaves, and abundantly on fences in New Haven, Conn., during the autumn flights.

Lophocarenum vernale, new.

PLATE XIV, FIGURE 8.

About 1.5^{mm} long. Legs light yellow. Cephalothorax same color, a little darker. In the male the head is darkened with gray, and in the only specimen I have all the colors are deeper than in the female. The head of the male is but little elevated. The eyes are all below the hump and close together on the front of the head. Fig. 8. The holes in the head are very small and behind and above the lateral eyes in a dark brown stripe. The tube of the palpal organ is long and curved round the end of the tarsus. The tarsal hook is flat and sharply curved and has three stiff hairs in the bend. The tibia has a short straight hook where it reaches over the tarsus, and a thicker process farther back on the outer side. Figs. 8a, 8b. The epigynum is wide and the edges curve forward and inward at the sides. In the middle is an indistinct ridge which widens at the end like a middle lobe.

I found a male and female of this species under a stone together, in March, on Pine Rock, New Haven, Conn.

Tmeticus Menge.

These spiders are all small and dull colored, many of them appearing like young of larger species. They usually have short legs and a low body like the smaller species of *Linyphia*, between which and this genus it is hard to draw a line. The males do not have any horns or humps, though they sometimes differ in size from the females. The males of several species have a prominent tooth on the front of the mandibles near the inner corner. Plate XV. The male palpi have the tibiae widened at the distal end and furnished with various teeth and hooks, the shape of which is characteristic of the various species, and is the plainest difference between this genus and the smaller *Linyphia*. The tarsal hook is smaller than in *Linyphia* and less variable. Plate XV. They are found under leaves in winter and but seldom on bushes even in summer.

This group corresponds tolerably well with Menge's *Tmeticus*, and I have accordingly adopted that name for it. It also includes many of Blackwall's *Neriene*.

Tmeticus probatus (Camb.)

Erigone probata Camb., Proc. Zool. Soc. London, 1875.

PLATE XV, FIGURE 1.

Length 1.5 to 1.8^{mm}. Cephalothorax yellowish brown. Legs dull yellow. Abdomen gray with five or six pairs of obscure yellowish transverse markings. The amount of color varies in different individuals, some being almost black and others very pale. The mandibles are longer than the head is high and taper slightly toward the tips. Except in the sexual organs, there is but little difference between the sexes. The male palpi are large and dark colored. The tibia is as wide as long with a hollow in the middle surrounded by various processes. Figs. 1, 1a. The tarsal hook is short and thick and partly covered by the teeth of the tibia. The tube of the palpal organ is short and surrounded by short and complicated appendages. Fig. 1a. The epigynum has a smooth edge just over the fold, and in light colored specimens the external parts show through the skin just in front of it.

This is found commonly on fences in autumn in Boston, Mass., and New Haven, Conn., and occurs under leaves in the neighborhood of both these places.

Tmeticus tridentatus, new.

PLATE XV, FIGURE 2.

Length, 2^{mm}. Legs orange-brown. Cephalothorax dark brown. Abdomen dark gray with five or six pairs of lighter spots. The mandibles of the male have a row of hooked teeth on the outer front edge. The female has slight traces of the same teeth. The male has a strong tooth on the front of the ends of the mandibles, which is wanting in the female. The male palpus has the tibia as wide at the outer end as long, with a wide tooth projecting over the tarsus. Fig. 2c. The palpal organ has three teeth attached by the base to a semicircular hard portion of the organ. Fig. 2e. The epigynum has the upper edges united in the middle and prolonged backward at the corners, forming a triangular opening over the rounded middle lobe.

Providence, R. I., and New Haven, Conn., under leaves; ♂ and ♀ on fences in November.

Tmeticus plumosus, new.

PLATE XV, FIGURE 3.

Length, 1.5^{mm}. Abdomen gray. Cephalothorax yellowish brown. Legs yellow, much like many other species. The male palpi have the tibiæ widened, and with several lobes and teeth on the edges. Fig. 3a. The tarsal hook is large and stout, with two teeth at the end. The palpal organ is of a complicated shape, but has in plain sight on the under side a peculiar appendage covered with stiff bristles. Fig. 3b. The mandibles have a small tooth in front.

Males only, from Montreal, Canada; Mt. Washington, N. H.; and Beverly, Mass.

Tmeticus trilobatus, new.

PLATE XV, FIGURE 4.

Length, 1.6 to 1.8^{mm}. Cephalothorax and legs dull yellow-brown, the legs a little lighter. Abdomen yellowish gray. The mandibles of the male have a tooth on the inner corner of the tip. The palpal organ is very similar to that of *tridentatus*. The tibial hook is narrower and more twisted. The three teeth on the palpal organ are not so distinctly united at their base to a horny ridge as in *tridentatus*. The outer edge of the epigynum, Fig. 4b, is deeply divided in the middle, showing the pointed middle lobe beneath. The two lobes of the upper edge extend backward half their length beyond the fold of the

abdomen. The colors and whole appearance of this spider make it resemble the young of larger species.

I have found it under leaves near Fresh Pond, Cambridge, Mass., and abundantly on fences at New Haven, Conn., during the autumn flights.

Tmeticus contortus, new.

PLATE XV, FIGURE 5.

This is another immature appearing species, slightly wider across the thorax than the last and darker colored. The shape of the palpus is very distinctive. Figs. 5, 5*a*. The tibia is turned aside at an angle of 45° with the rest of the palpus, and carries the triangular tarsus at the outer end. On the curved part of the tibia is a large and a small tooth. Fig. 5*a*.

Cambridge and Waltham, Mass.

Tmeticus longisetosus, new.

PLATE XVI, FIGURE 1.

About 2^{mm} long, light grayish yellow. The mandibles of the male have a prominent tooth on the inner corner projecting forward. Figs. 1*a*. The parts of the palpal organ are small but the tarsal hook is large with two teeth on the end, as in the preceding species. Near the base of the tarsal hook are two stout bristles as long as the tarsus and curved so as to fit against its edge. Figs. 1*b*, *c*, *d*.

New Haven, Connecticut, under leaves Oct. 15, 1880.

Tmeticus pertinens.

Erigone pertinens Camb., Proc. Zool. Soc. London, 1875.

PLATE XVI, FIGURE 2.

Length, 2.5^{mm}. Cephalothorax wide and palpi short. Cephalothorax yellow-brown, legs same color but lighter. Abdomen dark gray. The sexes are much alike. The male has the usual tooth on the front of the mandibles. The male palpi have the tibia expanded, with the two large teeth turned outward on the upper side. The tarsal hook is flat with two teeth. Fig. 2. The appendages of the palpal organ are large and conspicuous. The epigynum has the two upper lobes about as wide as the middle one and separated more than their width from each other. Fig. 2*c*.

Tmeticus montanus, new.

PLATE XVI, FIGURE 3.

About 1.5^{mm} long and dull colored. Abdomen dark gray. Cephalothorax yellow-brown. Legs same color, but paler. The cephalothorax has an indistinct dark stripe each side near the edge. Males a little smaller than females. Mandibles of male without teeth in front. Tibia of male palpus as wide as long with a short curved tooth on the upper side. Tarsal hook wide, like *Erigone*, with a tooth at the outer corner. The tube of the palpal organ is moderately long and supported only at the tip by a thin appendage. Fig. 3*b*. The epigynum is slightly raised and dark brown, the middle lobe very narrow and separated from the side lobes by shallow grooves ending in slight notches at the edge.

From moss on various parts of Mt. Washington, New Hampshire, from Hermit Lake to the highest trees.

Tmeticus pallidus, new.

PLATE XVI, FIGURE 4.

This spider is little over 1^{mm} long and very pale colored. Legs and cephalothorax light yellow. Abdomen pale gray, almost white. Eyes with black rings. Epigynum without any distinct grooves or notches and showing the dark brown spermathecae through the skin. The males are of the same size and color as the females. The mandibles have no prominent teeth in front. The tibia has a very long hook which extends nearly to the end of the tarsus. It has a wide tooth near the middle and a very narrow and slightly curved tip. The palpal organ has the tube and its appendages very narrow and simple. Fig. 4*a*.

New Haven, Conn., and neighborhood.

Tmeticus maximus, new.

PLATE XVI, FIGURE 5.

This is a large species nearly 3^{mm} long. The colors are dark. Cephalothorax yellowish brown, darker and reddish toward the head. Legs lighter yellowish brown. Abdomen gray. The mandibles have a prominent tooth on the front inner side. The tibia of the male palpus is small and has a short process roughened at the tip on the upper side. The tarsus is long. The tarsal hook is large and dark colored, with two teeth on the curved end. The palpal organ is large and dark brown, but the tube and its supporting appendages are small.

One male only, from Mt. Washington, New Hampshire, in moss, half way up.

***Tmeticus tibialis*, new.**

PLATE XVI, FIGURE 6.

The cephalothorax, legs and palpi are of a nearly uniform light brownish yellow and the abdomen is nearly the same color. The male palpi are short. The tibial joint is short and wide and has a long curved process on the outer side nearly as long as the tarsus. The tarsus is short and truncated at the tip. The tarsal hook is wide at the base and turned abruptly backward at the end. The palpal organ is small. The tube is curved and supported by two short appendages. The female supposed to be of this species is about the same size and color. The epigynum is short and wide. The middle lobe covers over half the width and is slightly narrowed toward the edge. The side lobes are darker colored and thickened and separated by a shallow notch from the middle lobe.

A male and a female from the upper part of Mt. Washington, between it and Mt. Clay, in June.

***Tmeticus bostoniensis*, new.**

PLATE XVII, FIGURE 1.

A large species, about 2.5^{mm} long. Cephalothorax yellowish brown. Legs yellow. Abdomen dark gray. Legs slender. Mandibles without the front tooth. Tibia of male palpus short with a large double process on the outside, half as long as the tarsus. The tarsal hook has a very peculiar shape, it is curved outward at the end as usual, but the end is nearly as wide as the hook is long and has two spreading teeth. The tube of the palpal organ is long and curves across the truncated end of the tarsus.

One male from a fence in Boston, in October.

***Tmeticus bidentatus*, new.**

PLATE XVII, FIGURE 2.

Length, 1.5^{mm}. Cephalothorax yellowish gray. Legs same color, but lighter. Abdomen gray, darkest beneath, in some specimens dark, in others almost white. Cephalothorax oval. The small size and dull colors make the females look like young of some larger species. The tibia of the male palpus is wide and extends slightly over the tarsus, where it has two short rounded teeth. The outer

half of the tibia is dark colored. The tarsal hook is small and lies partly in a hollow in the edge of the tarsus.

Several places on Mt. Washington, N. H.

***Tmeticus concavus*, new.**

PLATE XVII, FIGURE 3.

Length, 1.5^{mm}. Abdomen gray. Cephalothorax brownish yellow with black edges. Legs dull yellow. Male palpi small. Tarsal hook half as long as the tarsus, with a hollow in the middle bounded by two ridges, one near the base of the hook and the other parallel to it just beyond the notch. The palpal organ has two sharp black points and a curved soft appendage at the end. The tarsus is much longer and thicker than the tibia.

Maple swamp at Clarendon Hills, near Boston, in large numbers. Pine swamp, New Haven.

***Tmeticus microtarsus*, new.**

PLATE XVII, FIGURE 4.

Length, 1.5^{mm}. Cephalothorax and legs dull grayish yellow. Abdomen gray. Male palpi very small, the tarsus oval and the palpal organ small and without any large projecting processes. The tarsal hook is flat and fits close against the palpal organ. It has a short hook at the end. The tibia is about half as long as the tarsus and at the outer end nearly as wide as the tarsus. Its edge has no teeth or large notches.

Mt. Washington, N. H., in moss, under the highest trees.

***Tmeticus truncatus*, new.**

PLATE XVII, FIGURE 5.

Length, about 2^{mm}. Cephalothorax and legs brownish yellow. Abdomen light gray. Head wide just behind the eyes. Eyes small, surrounded by black rings. The tibia of the male palpus is nearly as long as the tarsus. It is widened at the distal end, and as seen from above has a nearly straight front edge. On the outer side is a deep notch. The tarsus is short and blunt at the end.

Mt. Washington, in moss, under the highest trees.

***Tmeticus terrestris*, new.**

PLATE XVII, FIGURE 6.

Length, about 1.5^{mm}. Cephalothorax dark yellow-brown. Legs and palpi same color but lighter. Abdomen gray. The male palpi

are short and small. The tibia is widened at the end but does not extend much over the tarsus. The tarsal hook is flat and curved backward at the end, under which is a blunt tooth. The palpal organ is small.

Mt. Tom, Holyoke, Mass., and Salem, Mass., under leaves.

Tmeticus brunneus, new.

PLATE XVII, FIGURE 7.

Cephalothorax, 1.2^{mm} long and dark brown. The head is wide and round, and the eyes small. The mandibles are long and without a large tooth in front. The legs are stout and brownish yellow. The palpi are short, a little longer than the femur of the first legs. The tibia of the male palpus is short except on the upper side, where it extends over the tarsus. The tarsal hook is large and wide at the base, curving outward at the tip, which is slightly widened. The tarsus and palpal organ are dark brown and about as wide as long. The tube appears to be partly hidden under the edge of the tarsus and supported at the end by various short processes.

One male only, from Mt. Washington, N. H.

Erigone (Menge.)

In this genus I include only those spiders of which the males have long palpi with a tooth under the end of the patella. The maxillae and the mandibles are much thickened at the base. The tarsus and palpal organ are small. The females differ but little from those of the related genera.

Erigone autumnalis, new.

PLATE XVII, FIGURE 8.

This is smaller than the other species, being little over a millimeter long. The colors are lighter than usual. The abdomen is yellowish gray, the legs orange-yellow, and the cephalothorax bright orange, especially on the head and mandibles. The eyes are surrounded with black. The bright color of the head makes this spider easy to recognize among the species which fly in autumn. The males and females are of the same size and color, though the latter are slightly paler. The mandibles of the male are large and have two rows of strong teeth inside the tip. The palpi have a long and pointed spur on the patella. Fig. 8*b*. The tibia is short but expanded as usual at the end. The palpal organ is much like the other species.

This species is common on fences in October and November, in

Boston, Mass., and New Haven, Conn. I have also found a few specimens under leaves in woods.

Erigone longipalpis?

PLATE XVII, FIGURES 9 AND 10.

Of this group, whatever it may be called, I have a large number of specimens, which I am unable to separate into distinct species, though there are great differences among them. The size varies from 1.5^{mm} to 2.5^{mm}. The color of the cephalothorax and legs varies from dark gray to bright orange-brown. The maxillæ are thickened at the base more in the males than in the females. The mandibles of the males are long and thick in the middle but narrowed toward the base. The male palpi are very long but the length and shape of the different joints varies greatly in different individuals. The most common form, an average specimen of which is drawn in Fig. 9, has the patella and tibia of nearly equal length and both together about as long as the femur. This, however, varies in different individuals. The palpal organ has the tube short with a curved tooth on the end beyond the opening. Near the tube are two soft appendages and various teeth and processes as in other varieties. I have found these abundant in Boston and New Haven on fences in November and October. They have been named *Erigone dentigera* by Cambridge, in Proc. Zool. Soc. London, 1874. With the above occurred another variety, Fig. 10, which Cambridge identified with the European *longipalpis*. It is somewhat larger and brighter colored on the cephalothorax and legs. The head is more abruptly elevated, the palpi are longer, and the teeth on the femur and around the edge of the thorax are larger. The palpal organ is longer and the tube has a longer and straight point, Fig. 10*a*, beyond its opening. A male from Essex, Mass., has the head higher and the palpi nearly as long, but the tibia is shorter and much widened at the end. Another male from Danvers, Mass., has the same flaring tibia and similar palpal organ, but is smaller and has much shorter palpi than most of the others. The epigynum in the most common form has a large opening covered by a projecting hood, around the edge of which is a thickened rim that may be mistaken for the tubes of the spermathecae. I have numerous females which I am unable to classify or to connect with the varieties of males.

Gonatium Menge.

Gonatium rubens (Menge.)

Neriene rubens Blk., Spiders of Great Britain.

Gonatium cheliferum Menge, Preuss. Spinn.

PLATE XXIII, FIGURE 6 TO 6c.

The males of this species are distinguished by the large femoral joints of the palpi. Fig. 6. Both sexes are 2.5^{mm} long. The cephalothorax is bright orange with a little black between the eyes, from which two or three indistinct lines run back to the dorsal groove. The head is slightly elevated in females and the front middle eyes project beyond the others. In males the part of the head about the eyes is narrowed and much higher. The legs and palpi are light yellow or orange, and the abdomen is gray, usually light, but in some specimens almost black. The epigynum is dark brown and raised slightly beyond the surface of the abdomen. Fig. 6c. The palpi of males are very stout. Figs. 6, 6b. The femora are thick and extend upward to a point opposite the eyes, and this point is covered with short black teeth. The patella and tibia are short; the latter has a long hook which bends over the tarsus. Fig. 6. The palpal organ, Fig. 6a, has a long slender tube supported by an equally slender process about half its length. Between these is a thin flat appendage, and near the tip several soft appendages with finely-cut edges. The front legs of the male are also modified. Fig. 6. The femur has a row of long hairs on the front or under side. The tibia is bent and has a line of long hairs on the under side. The metatarsus has a row of still stronger hairs on the under side and is slightly bent at the upper end.

I have not found this spider common anywhere but have specimens from Beverly, Salem, Lynn and Quincy, Mass., and Meriden, Conn. Some were sifted from leaves, others taken on fences in autumn.

Linyphia (Latr.) Menge.

These are the largest spiders in this sub-family. They live in comparatively open situations and are brightly colored. The cephalothorax is long and the legs long and slender with distinct spines. The abdomen is slightly flattened on the back except in *L. phrygiana*, and in *marmorata* and *communis* it is widest behind the middle. The epigynum has two large openings without any complicated parts over them. The tarsal hook of the male palpus is very small and sickle-shaped. The tube of the palpal organ is short and supported by a thick spirally-grooved process, except in *mandibulata*, which

has the tube extremely long. The males of several species differ greatly from the females.

Linyphia marginata C. Koch.

Linyphia scripta Hentz, and probably *L. marmorata* Hentz.

PLATE XVIII, FIGURE 1.

Length of either sex about 4^{mm}. Cephalothorax of female yellowish brown with a light stripe on the edges each side. The abdomen is egg-shaped, thickest behind and somewhat flattened at both ends. In the middle of the back of the abdomen, Fig. 1, is a dark stripe consisting of several partly separate patches in which are two or three pairs of light spots. Each side of this stripe the back is yellowish white, and whitish and brown stripes extend irregularly down the sides. The under side of the abdomen is dark brown, with two rows of whitish spots along the sides. The sternum is also dark brown. The legs are light yellow with long, dark colored spines. The claws are slender with sharp teeth. They become stiff and brittle in alcohol. The front legs are 9^{mm} or 10^{mm} long. The males are about as long as the females, but have the thorax larger and abdomen smaller. The cephalothorax is redder and the lighter margins less distinct. The abdomen is dark brown or gray with the light markings almost covered up, except one spot on each side which is usually distinct. The eyes of the male are smaller than those of the female, but the head has nearly the same shape and height. The mandibles of the male are wider at the tip, with two prominent teeth, one at the inner corner and the other in the middle. Those of the female have three teeth near the inner corner. The male palpi have a slender sickle-shaped tarsal hook. Fig. 1j. The tube of the palpal organ is short and thick and it is accompanied by a thin forked appendage and a softer rough one, all of which rest against a large, dark brown, twisted process. Figs. 1g, 1h. Another process of the palpal organ has an irregular toothed edge where it approaches the spiral process and tapers backward to a point near the base of the tarsus. Fig. 1g. The epigynum has a very large opening directed backward, covered by a dark brown skin. The male and female may be seen pairing in the web in June, for hours at a time, the male taking out his palpus and putting it in again every minute or two. The web consists of a large irregular net of threads in which is a smooth and finer sheet, concave below and held by threads running in all directions. The spider stands under the middle of the concave part of the web and catches what falls down from the irregular

threads above. There is often an imperfect sheet of web below, which I suppose to be an abandoned web and not a necessary part of the one in use. The threads of this web often look purple in the sunlight. This is one of the most common spiders in the woods, making its webs among the underbrush, a foot or two from the ground. It also spins among rocks and in stone walls.

Common all over New England. Hentz found both *marmorata* and *scripta* in Alabama. It is also common in Europe.

Linyphia communis Hentz, Proc. Boston Soc. Nat. Hist., vol. vi.

PLATE XVIII, FIGURE 2.

The sexes of this spider differ greatly in size and color. The female is 3.5^{mm} to 4^{mm} long. Longest legs, 6^{mm}. The cephalothorax, mandibles, and sternum are yellowish brown. Legs and palpi dull yellow. Abdomen chocolate-brown above and below, with five pairs of white markings on the sides. The cephalothorax is high in front. The abdomen is proportionally larger than in *marmorata* and similarly truncated behind. The male is 2.5^{mm} long with legs as long as those of the female but more slender. The cephalothorax, mandibles and palpi are bright orange-brown, but the sternum is darker, like the female, as is the under side of the abdomen. The back of the abdomen is light yellow-brown, with indistinct markings on the sides similar to those of the female.

The web of this species consists of a net of irregular threads one foot or more high, under which is a closer flat sheet 4 to 5 inches wide, and convex below, where the spider stands. Below this, at a distance of 1 inch, is another similar sheet of web held in place by threads running in all directions. Small insects flying into the upper part of the web strike their wings against the threads and fall gradually down to the close web at the bottom, where they are caught and drawn through by the spider, as in the concave web of *marginata*. What the use of the lower sheet of web is, I have not seen. Males and females are found in the web together in July. The upper part of the web is often occupied by *Argyrodes trigonum*.

This spider is found from Mt. Washington, N. H., to New Haven, Conn. Hentz says it is common in the South.

Linyphia clathrata Sund. Thor. Synonyms European Spiders.

PLATE XVIII, FIGURE 3.

This species is 3^{mm} long. The cephalothorax is yellowish brown, with a darker stripe on the middle. The legs are yellow or orange

and shorter and stouter than in the other species. The abdomen is long-oval, light yellow above, with dark brown markings which sometimes nearly cover it. The under side of the abdomen and sternum are dark brown. The epigynum has a large opening in the middle. Fig. 3*d*. The palpal organ has a spiral spine at the end crossed by radiating lines. A large triangular appendage near the base shuts over the others. Figs. 3*b*, 3*c*. The tarsal hook is very small and slender. I have only a few specimens of this spider. The web is flat and near the ground. The spider stands at one side like *L. phrygiana*.

Eastern Massachusetts. I have compared the American specimens with a few European *clathrata* and believe they are the same.

Linyphia phrygiana C. Koch.

L. costata Hentz.

PLATE XIX, FIGURE 1.

Length, 5^{mm}. Cephalothorax light yellow, with a black line in the middle forked at the forward end, and a black line each side on the edge of the thorax. Legs light yellow, with a dark ring on the end of each joint and the middle of each tibia and metatarsus. The legs have also many dark spots, especially on the femora. The spines of the legs are black and conspicuous. The abdomen is yellowish with brown spots at the sides and beneath, and a dark brown or reddish herring-bone stripe along the middle of the back. The head of the male is twice as high as that of the female, and has a cluster of stiff hairs on the top. The male palpi have a long spur on the patella. The tarsal hook is longer than in the neighboring species but thin and sickle-shaped. The palpal organ itself is small and resembles that of *communis*. Fig. 1*e*. The epigynum has two openings partly covered by a triangular lobe, which extends backward over the middle of the epigynum.* Fig. 1*h*.

This is a very common species, both in town and country. It builds in fences and low bushes a large flat web, and stands concealed under one corner of it, running out quickly if anything touches it.

Mt. Washington, N. H.; Eastport and Portland, Me.; Boston, Mass.; Albany, N. Y.; Connecticut. Probably all over the United States and Europe.

Linyphia mandibulata, new.

PLATE XIX, FIGURE 2.

About the same size as *communis*, or a little larger. The female resembles the other species, but the male differs from them in the great length of the mandibles and the tube of the palpal organs. It resembles closely *L. pusilla* of Europe, but in my specimens the males have the back of the cephalothorax straight, not arched as in *pusilla*. The mandibles are slightly longer and wider at the end and the four teeth are more prominent than in *pusilla*. The palpal organs are almost alike, but the epigynum of *pusilla* has two separate and moderately large openings, like *marginata*, while in *mandibulata* the openings are covered. Fig. 2*b*. The colors of the female are variable, but the light markings are smaller and the whole body darker than in *pusilla*. The cephalothorax is yellowish brown, without markings. The abdomen of the females is usually dark brown, almost black, with several light yellow spots, usually two across the front part of the back and several around the sides and behind, forming in some a continuous line around the middle of the abdomen. Fig. 2. The males are slightly smaller than the females and have the abdomen much smaller and narrower, with no light markings, except the spots on the front of the abdomen. The head of the male is much lengthened forward beyond the mouth, and the mandibles are very long and slant backward toward the maxillæ. Fig. 2*b*. At the ends the mandibles are widened and have four teeth on the inner corner. The mandibles have a large process in the middle on the inside. Fig. 2*a*. The epigynum is simple externally the lateral lobes forming a notch over the middle one. The tube of the palpal organ is long and stiff, and turns one and a quarter times round the end of the palpus. Fig. 2*d*. The web is flat, in short grass, and males and females are found together there in the last of May.

Peak's Island, near Portland, Me.; Mt. Washington, N. H.; Quincy, Mass.; and Albany, N. Y.

Stemonyphantes Menge.*Stemonyphantes bucculentus* (Clerck) Thor., Syn. European Spiders.*S. trilineata* Menge.

PLATE XX, FIGURE 1.

Female, about 6^{mm} long. Color yellowish gray. Cephalothorax with a black stripe in the middle and one each side. Abdomen with three rows of black spots, more or less connected. Femur and tibia with black spots at the end and in the middle. The spots are bright-

est on the under sides of the legs. The sternum is black around the edge, and the abdomen has irregular black spots at the sides and beneath. The abdomen of the female is large and oval, slightly pointed behind. The epigynum is small, opening by deep notches at the sides of the short and wide middle lobe. The male is very much like the female, but the abdomen is smaller and the three teeth on the front of the mandibles are larger. The palpal organs are large and long, with three prominent spines at the end. Figs. 1*b*, 1*c*. The tarsal hook is flat and wide, and the forward corner of the base runs to a sharp point. The tibia is slightly widened at the end, and has several large hairs on the inner side.

This species lives under stones and logs, and I have occasionally found it under leaves in woods in winter. Salem, Mass.; Providence, R. I.; and New Haven, Conn. It is also a common European species.

Diplostyla.

Stylophora Menge.

These spiders resemble *Bathypantes*, except in their copulatory organs. They are all small spiders, living under leaves and low plants. The tarsus of the male palpus is long and the tube of the palpal organ extends outward to its truncated tip, where the tube is coiled in a flat spiral. Pl. XX. The tarsal hook is large and curved forward. The tube is supported by several strong processes near its base, and has a soft fringed appendage near its tip. The epigynum has two large openings, between which two soft appendages project backward.

Diplostyla nigrina (Werst.) Thor.

Bathypantes terricolus Menge.

PLATE XX, FIGURE 2.

This spider is about 2.5^{mm} long. Cephalothorax and legs yellow-brown. Abdomen black or dark gray, with five or six transverse light markings, usually in the male and sometimes in the female, broken into pairs of spots. The epigynum has long flexible processes, one from the upper and one from the under edge. The openings are at the base of these processes. Figs. 2*c*, 2*d*. The tarsus of the male palpus is truncated at the end and slightly narrowed in the middle. The tarsal hook is long and conspicuous. It is bent in a short curve at the end and is widened at the tip. The tube and one of its large appendages are twisted in a circle round the end of the tarsus,

with the ends of the soft appendages inside the circle and a stout straight appendage outside.

Mt. Washington, N. H.; Eastern Massachusetts; Providence, R. I., under leaves.

Diplostyla concolor (Reuss).

Stylophora concolor Menge.

PLATE XX, FIGURE 3.

Length about 2^{mm} in both sexes. Cephalothorax yellow-brown. Legs yellow. Abdomen dark gray or brownish. The copulatory organs are unlike any other native species. The epigynum has a long flexible process on the upper edge, extending back to the middle of the abdomen. Under the base of this process are the two holes of the epigynum, between which is another soft process more slender and half as long as the upper one. The tarsus of the male palpus is long and tapering. The tarsal hook is thickened at the base and extends half the length of the tarsus, it is curved outward at the end, and the tip is rounded and has a slight notch near the end. The tube and other appendages parallel with it curve upward from the base of the tarsus and extend in nearly a straight line to its extremity, over which this tube is twisted round in nearly a circle. The soft tips of the inner appendages are also twisted around with it.

This is common under leaves in winter. I have it from Cambridge and Salem, Mass.; Montreal, Canada; and New Haven, Conn.

Diplostyla canadensis, new.

PLATE XXI, FIGURE 1.

This species resembles *D. nigrina* but is smaller and has no markings on the abdomen. It is about 2^{mm} long. The cephalothorax and abdomen dark. Legs light yellow-brown. The male palpi are short and the palpal organ shorter than in *nigrina*. The tarsal hook is as long as in *nigrina*, but narrower at the end, one corner of which ends in a fine point. The tube is similar to that of *nigrina*.

One male from Montreal, Canada.

Drapetisca Menge.

Contains only *D. socialis*, which has long spines on the palpi and legs, the abdomen flat and wide behind with peculiar black and white markings. Pl. XXI. The male palpus has a large curved process at the base of the tarsus behind the tarsal hook. The epigynum, Fig. 2*b*, is long and not folded, and extends backward along the under side of the abdomen.

Drapetisca socialis (Sund.) Menge.

PLATE XXI, FIGURE 2.

Length, 2.5^{mm}. Cephalothorax white with black edges, a black spot in front under the eyes, and a black mark in the middle, from which indistinct dark lines radiate toward the edge. The abdomen is white with black or dark gray markings. On each side of the front of the abdomen is a distinct black stripe. In the middle is a row of irregular spots in pairs, connected together and with a middle line. The legs are white with dark rings at the end and middle of each joint; they have long spines. The under side of the body is white. The epigynum is long, widened toward the end, Fig. 2*b*, and not folded. Male with the usual differences from female. The tarsus of the male palpus has a long process curved behind it, besides the tarsal hook.

The mandibles have six teeth in front of the claw and several thick hairs at the upper part along the edge of two black marks.

Eastport, Me., on bark of spruce trees, which they closely resemble in color; Mt. Washington, in moss among highest trees; Beverly and Danvers, Mass., on bark and under leaves. It lives also in Europe. Menge found it common in Prussia on bark of spruce trees, without any web.

Helophora Menge.

Contains only *H. insignis*. The epigynum is long and straight, covered with hairs nearly to the end. The tube of the palpal organ is long and slender, supported by a short thin appendage at the end, and by a longer one which curves around the base of the palpal organ. The tarsal hook is small and the tibia has various spines and processes.

Helophora insignis (Blk.) Thor., Syn. Eur. Spiders.*Helophora pallescens* Menge.

PLATE XXI, FIGURE 3.

Length 3^{mm}. Cephalothorax and legs light yellow. Abdomen dark gray to white, without markings, or with gray stripes at the sides across the back. The cephalothorax is twice as wide across the middle as at the head. Legs without markings. Epigynum long and straight, reaching to the middle of the abdomen, with openings at the end, Fig. 3*b*, the tubes inside showing indistinctly through the skin. The palpal organ has a long curved tube, supported by a short thin appendage at the end, and both are nearly surrounded by a long thin appendage, under the end of which is a soft finger-like process.

The tarsal hook has two hard points near where it touches the tibia, one of which is curved outward. The tibia has just behind the tarsal hook three strong bristles, each of which is raised on a rounded process.

Beverly, Mass., in low bushes.

Bathyphantes Menge.

Including *Lepthyphantes* Menge.

This genus includes most of the small species of the old genus *Linyphia*. I do not see why the two species of *Lepthyphantes* should be separated from *Bathyphantes*, as they differ but little except in size. The abdomen in this genus is oval and high in front and pointed behind. The colors are usually gray and black, in transverse stripes or pairs of long spots, but some species have bright yellow or orange on the head and legs. The epigynum in this genus is long and folded, so that the end with the opening is partly concealed under the outer fold. This may be seen with the naked eye in the larger species. The male palpi have the tarsal hook very large and of complicated shapes. The tube of the palpal organ itself is short and thick, and usually hard to distinguish from the large appendages by which it is surrounded. The legs are long and slender, and the spines large and distinct. In the latter characters it differs from *Microneta*.

Bathyphantes minuta (Blk.) Thor., Syn. European Spiders.

Lepthyphantes muscicola Menge.

PLATE XXI, FIGURE 4.

This is 3^{mm} long, a little smaller than *nebulosa*. The cephalothorax is yellowish brown, darker at the edges but without any middle line. The dark markings on the abdomen nearly cover it, so that it appears dark gray with transverse light markings, or three or four pairs of white spots. The legs are light brownish yellow with dark rings on the ends and middle of the tibiae and femora. The epigynum is folded twice and when extended is as long as the abdomen. The palpal organ has the same long thin appendage, toothed at the end, as in *nebulosa*, and the swollen tube is plainly seen at its side. Fig. 4a. The tarsal hook is very large and has a narrow tip. At the base of the tarsal hook is a prominent ridge on the tarsus, and the tarsus has on the outer side, at the base, a conical point without hairs and roughened with short ridges. Fig. 4, x.

It lives in cellars and similar places, sometimes in company with *nebulosa*. Salem, Cambridge, and Beverly, Mass.

Bathyphantes nebulosa (Sund.) Thor., Syn. Eur. Spiders.*Lepthyphantes crypticola* Menge.

PLATE XXII, FIGURE 1.

Perhaps *Linyphia autumnalis* Hentz. Length 4^{mm}. Color light brownish yellow with gray or blackish markings. Some specimens are almost white, others are very dark with the black spots covering a large part of the body. The cephalothorax has a forked dark stripe along the middle and dark stripes near the edge on each side. The abdomen has six or seven pairs of irregular dark spots more or less connected with a dark central line. The under side of the abdomen and sternum have black spots which in dark individuals are run together, making these parts entirely black. The legs have dark rings on the ends and middle of the femora and tibiae. The spines on the legs are long and darker yellow than the skin. The epigynum is folded twice over the middle lobe of the end, with its opening just visible beyond the outer fold. Fig. 2c. The palpal organ is one of the most complicated in the family, though the parts are folded together so closely that only the outer long appendage with a toothed end and the tips of the inner parts are visible. I have figured the palpus of this species, with the parts separated by pressure, in the reprint of Hentz's Araneides of the United States, under the name of *Linyphia autumnalis* Hentz. The tarsal hook is large and complicated, and the tibia has a hard process grooved and toothed at the end. (Fig. 1d.) I have found this spider in cellars and other damp and shady places about houses, with flat webs, under which they stood near the edge or corner. I have compared several European specimens and believe this to be the same as *Lepthyphantes crypticola* Menge. This species is perhaps imported.

Salem and Cambridge, Mass., and Albany, N. Y.

Bathyphantes zebra, new.

PLATE XXII, FIGURE 2.

Length, 2^{mm}. Cephalothorax bright yellow-brown, with indistinct gray stripes in the middle and at the sides, and very black around the eyes. The abdomen is crossed above by five or six gray and whitish stripes, with scattered silvery white spots. Below, the thorax and abdomen are both dark gray. All the parts of the palpal organ are twisted across it. The tarsal hook has a very characteristic shape too complicated to describe. Fig. 2. The epigynum is short and wide, folded under except the tip. Fig. 2a. This is very near and possibly identical with *B. zebrinus* Menge.

I have this from many places in Eastern Massachusetts and from New Haven, Conn., under leaves in woods.

Bathyphantes subalpina, new.

PLATE XXII, FIGURE 3.

Length, 2^{mm}. My specimen has been dried and kept for a long time in alcohol, so that the colors are darkened. The cephalothorax and legs were evidently light brownish yellow, and the abdomen whitish above, with five or six pairs of transverse black spots. The under side of the abdomen and the sternum are black. The male palpi are large. The patella has a large bristle on the upper side. The tarsal hook is wide and turned up at the end. Fig. 3. The long appendage of the palpal organ has a sharp bend at the part over the tibia and turns upward, covering a large part of the organ. This resembles *B. alpina*, but is larger and the hair on the patella and the three slits in the palpal organ are smaller.

Mt. Adams, White Mountains, N. H.

Bathyphantes alpina, new.

PLATE XXII, FIGURE 4.

About 2.5^{mm} long. The colors are bright. Cephalothorax light brownish yellow, slightly darker at the edges. Legs and palpi light yellow. Abdomen whitish above, with a black or dark band each side, irregularly scolloped on the inner edge. On the front of the abdomen is a dark median line, and behind it four or five pairs of black spots that do not extend quite to the tip. On the under side the abdomen is black, this color extending round the spinnerets. The sternum is also black. The epigynum is large and extends beyond the surface of the abdomen. The folded portion is small and narrow. Figs. 4*b*, 4*c*. The male palpi are short and light colored. The tibia is short and wide, with various short processes on the edge. The tarsal hook is wide at the base and curves outward. The tip is flat and widened, and below it are three or four blunt teeth. On the patella is a long serrated spine. The largest appendage of the palpal organ is wide and divided into three teeth at the end; it folds around the base of the palpal organ, and extends upward nearly to the end of the tarsus.

Mt. Washington, N. H., from Hermit Lake up to the highest trees.

Bathyphantes angulata, new.

PLATE XXII, FIGURE 5.

Length, 1^{mm}. Color dull gray, slightly tinged with yellow on the cephalothorax and legs. Palpal organ brownish. The tarsus of the male palpus has a prominent angle on the upper side and a short spur at the base where it overlaps the tibia. The tarsal hook is flat as in *B. micaria*, which this species much resembles in its palpal characters. I do not know the females.

Mt. Carmel, Hamden, Conn., and Mill Rock, New Haven.

Bathyphantes formica, new.

PLATE XXII, FIGURE 7.

This species resembles *B. micaria*, but is larger and darker colored. The male is 2^{mm} long. The cephalothorax is about two-thirds as wide as long. The front of the head is nearly as wide as the widest part of the thorax. The abdomen is long and narrow and slightly constricted in the middle. The cephalothorax, palpi, sternum and femora are dark brown. The two basal joints of all the legs are white and the rest of the legs beyond the femur light yellow. The abdomen is black above and below. The femora of the palpi have stout strong spines near the outer end, three on the outer side and two on the inner. Figs. 7, 7*b*. The tibia is short and wide and very irregular in shape. The tarsus is angular. The tarsal hook is flat as in *micaria*. Fig. 7*a*.

Adult male, on a fence at New Haven, Conn., May, 1882, and young males in the same place in October.

Bathyphantes micaria, new.

PLATE XXII, FIGURE 6.

Length, 1.5^{mm}. Legs long, the front pair twice as long as the body. Cephalothorax wide in front, yellow-brown, darkened at the sides with gray, black around the eyes. Abdomen long and narrow, whitish, with a transverse gray mark in front and two pairs of oblique gray stripes at the sides, grayish underneath. The legs are light yellow and grayish at the ends of the joints. The tarsus of the male palpus is angular, and has a sharp process half way between the most prominent corner and the tibia. The tarsal hook is flat and wide, with a thin sharp point. Fig. 6.

On fences in October, at New Haven, Conn. One adult male and several young.

Bathyphantes complicata, new.

PLATE XXIV, FIGURE 8.

Length, 1.2^{mm}. Cephalothorax and legs light orange. Abdomen gray. The most distinctive mark of this species is the complicated tarsal hook. Fig. 8. This has a short tooth in the upper and another in the lower side of the bend, and at the end has an oblique groove that makes it appear twisted. The palpal organ is also complicated, one long thin appendage bends around its base and extends nearly to its tip, where it meets the end of the tube which is short and thick.

Half way up Mt. Washington, N. H.

Bathyphantes bihamata, new.

PLATE XXIII, FIGURE 4.

Length, 1.5^{mm}. My specimen has been dried, so that the colors are not natural, but the cephalothorax appears to have been dark yellowish gray, the legs yellow, and the abdomen dark with indistinct light spots. The legs are long with some long spines. The male palpi are large. At the base of the the tarsus, near the tarsal hook, is a small process resembling the spur in several species of *Microneta*. The tarsal hook is large and bent around in a half circle. It has two small, thin teeth on the outer side. Fig. 4.

Lower part of Mt. Washington, N. H.

Bolyphantes (Koch.) Menge.

The following species belongs to this genus, as limited by Menge. The body is long and slender in both sexes. Menge figures the epigynum as folded or three-lobed, but this does not show in my specimens, which are probably immature. The male palpi have a large process on the tibia, which fits against the hinder edge of the tarsus, and has at its base a hollow into which fits the long spur of the tarsal hook, which extends backward nearly to the patella. The tube of the palpal organ is long and slender, but partly concealed by the long appendages over it. The heads of the males are high, and in some species with a distinct hump.

Bolyphantes drassoides, new.

PLATE XXIII, FIGURE 5.

Length, 1.8^{mm}. Abdomen long and straight. Cephalothorax and legs light yellow. Abdomen whitish with gray markings, a median

gray line on the front, extending half the length of the abdomen, beyond the end of which are two or three transverse pale gray markings, and another distinct one just over the spinnerets, extending nearly round them. Beneath are two longitudinal gray bands. The abdomen is covered with long hairs which do not obscure the markings. The head of the male has a crest of stiff hairs just behind the eyes, the front one much larger than the others, and curving forward over the head. There is a slight hump on the head, which raises the bases of these hairs half their length above the eyes. Fig. 5. The epigynum is large and extends outward from the abdomen. The palpi of the male are very complicated. The tibia has a long process which bends round against the hinder edge of the tarsus. Fig. 5a. The tarsal hook has a long curved tooth that extends backward nearly to the base of the tibia, and a shorter tooth parallel to it nearer the base. The tube is long and slender, curving once round the palpal organ and nearly hidden by the other appendages.

Mt. Carmel, Hamden, Conn., under leaves in October.

Microneta Menge.

This group differs but little from *Bathyphantes* on one side and *Tmeticus* on the other. The body is longer and lower than in *Bathyphantes* and the legs shorter and stouter, as in *Tmeticus*. The colors are oftener brown than in that genus, and there are no distinct markings. The palpal organs are like *Bathyphantes*. The tarsus usually has a spur at the base, which in some species extends backward over the tibia. Pl. XXIII. The tarsal hook is large and varies in shape according to the species. The tube is short and thick, with the same complicated appendages as in *Bathyphantes*. The epigynum is also folded as in *Bathyphantes*. Menge's genus *Microneta* consists almost entirely of these spiders, but other species are included in his genera *Micryphantes* and *Bathyphantes*.

Microneta viaria.

Erigone viaria Camb., Proc. Zool. Soc. London, 1875.

Neriene viaria Blk.

Microneta quisquiliarum Menge.

PLATE XXIII, FIGURE 1.

This is one of the most common spiders under leaves in woods. Specimens from my collection were identified by Cambridge in 1875. It is 2^{mm} to 2.5^{mm} long. Cephalothorax and legs brownish yellow. Abdomen gray or brownish, darker than the thorax. The epigynum

is folded under so that only the end shows beyond the outer hairy portion. The tarsus of the male palpus has a short spur at the base. The tarsal hook is short and curved outward. Fig. 1, u. The tube of the palpal organ is very large with two smaller appendages near its base. Fig. 1*a*, *t*.

Mt. Washington, N. H.; Montreal, Canada; Eastern Massachusetts; New Haven, Conn.; also common in Europe.

Microneta cornupalpis.

Erigone cornupalpis Camb., Proc. Zool. Soc. London, 1874.

PLATE XXIII, FIGURE 2.

Length, 2^{mm} in both sexes. Legs and cephalothorax brownish yellow. Abdomen dark gray. The basal part of the epigynum is two-lobed, and the narrow terminal finger extends between and below them. Fig. 2*b*. The tarsus of the male palpus has a long, slightly curved spur about as long as the rest of the tarsus. The tarsal hook has two teeth curved outward at the end, the upper one bilobed. Fig. 2, u.

Waltham and Milton, Mass., under leaves; New Haven, Conn.

Microneta persoluta.

Erigone persoluta Camb., Proc. Zool. Soc. London.

PLATE XXIII, FIGURE 3.

Males about 1.5^{mm} long, some a little larger and others smaller. Cephalothorax and legs light brownish yellow, blackish between the eyes. Females collected at the same time and apparently the same species are considerably smaller, little over 1^{mm} long. The colors are the same in both sexes. The abdomen is dark gray with several pairs of indistinct light spots on the hinder part. The epigynum in my specimens is perhaps immature. Fig. 3*b*. It has a narrow finger in the middle, on each side of which is an oval, smooth brown spot. The palpus of the male has a short and small tibia. The tarsal hook is large, turning outward at the end without any sharp teeth. The tarsus has a short curved spur at the base. The basal part of the palpal organ, Fig. 3*a*, *x*, is curved half round the tarsus and colored dark brown. The appendages of the palpal organ, including the tube, are small and crowded together on the inner side.

Mt. Washington, N. H.; and Beverly, Lynn and Saugus, Mass.

Microneta discolor, new.

PLATE XXIV, FIGURE 1.

Length, 2.5^{mm} to 3^{mm}. Males larger than females. Cephalothorax and legs orange-brown. Abdomen whitish below and brownish gray above, darker toward the front. In some specimens the dark stripe on the back is very distinct. The mandibles of the male, Fig. 1, are larger and darker than those of the females and have a large tooth on the front inner corner. The tarsal hook of the male palpus is large and has a narrow point turned back nearly to the base. Fig. 1b. The epigynum is small and light colored, showing the inner tubes plainly through the skin. Fig. 1a.

Waltham, Mass., and New Haven, Conn., under leaves in winter.

Microneta quinquentata, new.

PLATE XXIV, FIGURE 2.

Length, 2.5^{mm} to 3^{mm}. Legs and cephalothorax brownish yellow, cephalothorax with dark edges. Abdomen dark gray. A slightly larger and darker species than *viaria*. The upper fold of the epigynum is narrowed toward the end and transversely wrinkled like the hook of the epigynum of some *Epeira*. Fig. 2b. The male palpus has the tarsal hook wide and blunt with a curved ridge on which is a row of teeth. Fig. 2. The most characteristic part of the palpal organ is a row of five short teeth on the middle. Fig. 2a. Under this is the large, dark brown part, with a sharp spine directed forward and two blunt spines toward the base. The inflated tube lies between this and the tarsal hook.

Montreal, Canada; Mt. Washington, N. H.; Beverly, Swampscott and Quincy, Mass.

Microneta crassimanus, new.

PLATE XXIV, FIGURE 3.

Length, about 3^{mm}. Cephalothorax and legs light orange-brown. Abdomen gray. The eyes are small, and the head twice as wide as the eye-area and rounded in front. The femora of all the legs are stout. The tarsus of the male palpus has a prominent process on the edge just over the tarsal hook. The tibia is unusually thick and without any hook. The tarsal hook is large and strongly curved, the end is flat and wide, and divided into two teeth, one twice as large as the other. Over the hook is the end of a large appendage of the palpal organ fringed with fine teeth.

Hermit Lake, Mt. Washington, N. H.

Microneta latidens, new.

PLATE XXIV, FIGURE 4.

Length, 2^{mm} to 2.5^{mm}. Cephalothorax and legs light yellow-brown, or slightly reddish in dark-colored specimens in alcohol. Abdomen light gray, darkest toward the end. The tarsus of the male palpus is wide and angular at the base. The tarsal hook is as wide at the base as half the length of the tarsus. It turns outward at the end and has a deep bend with a sharp hook extending forward. Fig. 4. The palpal organ is small.

New Haven, Conn., in several places under leaves in winter.

Microneta furcata, new.

PLATE XXIV, FIGURE 5.

Length, 1.5^{mm}. Cephalothorax and legs yellow-brown, abdomen gray. The tibia of the male palpus is short and wide. The tarsal hook is wide at the base and deeply curved. It has a ridge on the outer end. One of the appendages of the palpal organ, with two sharp black points near the end, curves round its base near the end of the tarsal hook. The end of the palpal organ is much as in *longibulbus*.

White Mountains, N. H., on the ridge between Mt. Washington and Mt. Clay.

Microneta longibulbus, new.

PLATE XXIV, FIGURE 6.

Length, 2^{mm}. Cephalothorax and legs dull brownish yellow. Abdomen gray. The palpal organ extends back to the tibia, where its narrow end curves around toward the tarsal hook. Fig. 6a. Over the middle of the palpal organ is a small black process with a flat end, and at the top are two small hooked appendages. Fig. 6a. The tarsal hook is wide at the base and deeply curved. The end has an irregular ridge on the outer side. The tibia is short and as wide as long.

Milton, Mass., under leaves in winter.

Microneta olivacea, new.

PLATE XXIV, FIGURE 7.

Length, nearly 2^{mm}. Cephalothorax yellowish gray, darkest at the edges and in the front of the head. Abdomen darker gray, yellowish in front. Cephalothorax almost as wide as long, but the head is narrow and eyes close together. Legs and palpi pale. The tarsus of the male palpus is large and angular. When the palpi are curved downward in a natural position, a sharp corner of the tarsus is directed forward, and the inner sides are nearly flat and parallel. The tarsal hook is blunt with a short and wide tooth near the end. Fig. 7. The palpal organ is large and complicated. Over the tarsal hook is a hard appendage with two teeth.

Two males from the upper part of Mt. Washington, N. H., between it and Mt. Clay.

EXPLANATION OF PLATES.

PLATE I.

1. *Theridium differens*, dorsal markings of female $\times 8$; 1a, male $\times 8$; 1b, male palpus; T, the tube; x, soft terminal appendage; y, hard roughened corner of the palpal organ; 1c, epigynum, outer side, showing no openings; 1d, epigynum made transparent, showing the openings x x on the under side, the spermathecae s s, the long tubes y y leading to the outer openings, and the short tubes leading to the oviduct.

2. *Theridium spirale*, dorsal markings of female $\times 8$; 2a, dorsal markings of male $\times 8$; 2b, male palpus; T, the long tube; 2c, epigynum, showing the openings outside; 2d, epigynum made transparent, showing the spermathecae s s, the long tubes y y, and the short tubes z z.

3. *Theridium montanum*, dorsal markings of female $\times 8$; 3a, dorsal markings of male $\times 8$; 3b, male palpus, the hard toothed appendage of the palpal organ at the right; 3c, epigynum, showing the single hole in the middle and a hard depression each side.

4. *Theridium zelotypum*, dorsal markings of female $\times 8$; 4a, epigynum with a single opening and short tubes to the spermathecae.

5. *Theridium murarium*, dorsal markings of female $\times 8$; 5a, male palpus; T, the tube. At the left of the tube is a hard tooth.

6. *Theridium puncto-sparsum*, dorsal markings of female $\times 8$; 6a, epigynum with a single opening partly divided at the hind edge.

PLATE II.

1. *Theridium tepidariorum* C. Koch. abdomen of female $\times 8$; 1a, male palpus; 1b, epigynum with a single opening partly divided at the forward edge.

2. *Theridium rupicola*, abdomen of female $\times 8$; 2a, male palpus; 2b, epigynum from below, showing a single opening covered by a horny ridge; 2c, epigynum from the right side.

3. *Theridium globosum* Hentz, side of female $\times 8$.

4. *Theridium unimaculatum*, side of female $\times 8$; 4a, male palpus; 4b, epigynum, showing a single opening near the edge, and the internal parts indistinctly through the skin.

5. *Theridium sexpunctatum*, dorsal markings of female $\times 8$; 5a, mandibles of male; 5b, male palpus; 5c, epigynum with a single large opening through which the openings of the two tubes show indistinctly.

PLATE III.

1. *Theridium frondeum* Hentz, 1a to 1f, dorsal markings of females $\times 4$; 1♂, cephalothorax of male $\times 8$, showing form of head and mandibles; 1g, male palpus; 1h, epigynum, showing the single opening directed forward.

2 and 2a. *Theridium lineatum*, dorsal and ventral markings of female $\times 4$.

3. *Mimetes intersector* Hentz, female $\times 4$; 3a, head; 3b, epigynum.

4. *Mimetus epeiroides*, dorsal markings of male $\times 4$; 4a, tarsus of male palpus; 4b, palpal organ, twisted to the right by contraction in alcohol.
5. *Ero variegata*, side of female $\times 8$; 5a, dorsal markings of female $\times 8$; 5b and 5c, male palpus; 5d, epigynum.
6. *Steatoda triangulosa*, dorsal markings of female $\times 6$; 6a, male palpus.

PLATE IV.

1. *Steatoda borealis*, dorsal markings of female $\times 4$; 1a and 1b, male palpus; 1c, eyes of female; 1d, epigynum.
2. *Steatoda guttata*, dorsal markings of female $\times 8$; 2b, male palpus.
3. *Steatoda narmorata*, 3 and 3a, dorsal markings of two varieties; 3b, eyes of male; 3c, male palpus; 3d, epigynum; 3e, ends of mandibles of female; 3f, end of mandible of male.
4. *Steatoda nigra*, head of female $\times 16$; 4a, epigynum with small central opening; 4b, male palpus.
5. *Steatoda corollata*, dorsal markings of female $\times 4$; 5a, eyes of female; 5b, epigynum.
6. *Asagena americana* Keys, dorsal markings of female $\times 8$; 6a, head of male; 6b, under side of sternum and femora of male; 6c, male palpus.

PLATE V.

1. *Argyrodes trigonum*, side of female; 1a, tip of abdomen seen from above; 1b, cephalothorax from above; 1c, side of cephalothorax of male; 1d, male palpus; 1e, egg-cocoon.
2. *Argyrodes fictitium*, side of female; 2a, cephalothorax from above.
3. *Theridula sphaerula*, female $\times 8$; 3a, 3b, male palpus.
4. *Lasæola cancellata*, female $\times 20$; 4a, side of female $\times 20$.
5. *Euryopsis argentea*, dorsal markings of young female $\times 20$.
6. *Euryopsis funebris*, female $\times 4$; 6a, head of male; 6b, male palpus.
7. *Spintharus flavidus*, female $\times 4$.

PLATE VI.

1. *Ulesanis americana*, side of female $\times 20$; 1a, female from above; 1b, side of male; 1c, cephalothorax of female; 1d, sternum of female; 1e, side of cephalothorax of female; 1f, 1g, male palpus.
2. *Pholcus phalangioides*, female and male natural size, and cephalothorax of female enlarged; 2a, palpus of male.
3. *Spermophora meridionalis*, cephalothorax of female enlarged.
4. *Scytodes thoracica*, cephalothorax of female; 4a, palpus of male.
5. *Pholcomma rostrata*, male; 5a, 5b, male palpus.
6. *Pholcomma hirsuta*, male; 6a, mandibles of female; 6b, sternum; 6c, 6d, epigynum; 6e, 6f, 6g, male palpus.

PLATE VII.

1. *Ceratinella emertoni*, side of male; 1a, 1b, male palpus; t, the tube; h, tarsal hook; tib., tibia with tibial hook; 1c, tibial and tarsal hooks seen from above; 1d, epigynum.
2. *Ceratinella fissiccps*; 2, 2a, 2b, side of cephalothorax of male, showing variation in shape of the head; 2c, male palpus; h, tarsal hook; tib., tibial hook seen edgewise; 2d, palpal organ; 2e, tibial hook; 2f, epigynum.

3. *Ceratinella bulbosa*, side of male; 3a, cephalothorax of male from above; 3b palpal organ; 3c, tibial hook.

4. *Ceratinella pygmaea*, side of male; 4a, 4b, 4c, male palpus.

5. *Ceratinella atriceps*, side of male; 5a, side of cephalothorax of female; 5b, 5c, male palpus; 5d, epigynum.

PLATE VIII.

1. *Ceratinella leta*, side of male; 1a, 1b, male palpus; 1c, tube of palpal organ; 1d, epigynum.

2. *Ceratinella latibilis*, side of male; 2a, 2b, male palpus; 2c, tube of palpal organ; 2d, epigynum.

3. *Ceratinella brunnea*, male palpus; 3a, bend of tube of palpal organ; 3b, epigynum.

4. *Ceratinella minuta*; 4, 4a, male palpus; 4b, epigynum.

5. *Ceratinella micropalpis*, male palpus.

6. *Cornicularia auranticeps*, head of male seen from in front, showing horn, eyes, and top of palpi; 6a, side of head of male; 6b, tibia and tarsus of male palpus; 6c, male palpus, showing palpal organ; 6d, epigynum.

7. *Cornicularia clavicornis*, side of cephalothorax of male; 7a, tarsus of male palpus; 7b, male palpus, showing palpal organ.

PLATE IX.

1. *Ceratinopsis interpres*, side of cephalothorax of male; 1a, eyes of male; 1b, head of male from the side; 1c, end of mandible of male; 1d, 1e, male palpus; 1f, tibial and tarsal hooks; 1g, epigynum.

2. *Ceratinopsis nigriceps*, head of female from above; 2a, 2b, male palpi; 2c, tibial and tarsal hooks; 2d, epigynum.

3. *Ceratinopsis laticeps*, male from above; 3a, cephalothorax of male from the side; 3b, 3c, male palpi.

4. *Ceratinopsis nigripalpis*; 4, side of male; 4a, 4b, 4c, male palpi.

PLATE X.

1. *Lophomma cristatum*, side of cephalothorax of male; 1a, male palpus, showing palpal organ; 1b, tibia and tarsus of male palpus.

2. *Lophomma elongatum*, side of cephalothorax of male; 2a, top of cephalothorax of male; 2b, head of male from in front; 2c, 2d, male palpus.

3. *Grammonota ornata*, side of cephalothorax of male; 3a, dorsal markings of abdomen; 3b, male palpus; 3c, tibial and tarsal hooks.

4. *Grammonota pictilis*, side of cephalothorax of male; 4a, abdomen, showing dorsal markings; 4b, male palpus, showing coiled tube near the top; 4c, tibial and tarsal hooks; 4d, epigynum and soft process in front of it; 4e, internal parts of epigynum, the tube *x* from the outer opening twists around twice to the point *z*, where it turns abruptly backward and makes two turns between the first back to the spermatheca *s*.

5. *Grammonota inornata*, cephalothorax of male; 5a, 5b, male palpus.

6. *Spiropalpus spiralis*, side of cephalothorax of male; 6a, male palpus, showing palpal organ; 6b, tibia and tarsus of male palpus; 6c, epigynum; 6d, abdomen of male, showing indistinct dorsal markings.

PLATE XI.

1. *Cornicularia directa*, side of male; 1*a*, side of head of male; 1*b*, top of head of male; 1*c*, tibial hook.
2. *Cornicularia tibialis*, side of cephalothorax of male, 2*a*, 2*b*, 2*c*, tibia and tarsus of male palpus.
3. *Cornicularia communis*, side of head of male; 3*a*, top of head of male; 3*b*, epigynum.
4. *Cornicularia indirecta*, side of head of male; 4*a*, top of head of male; 4*b*, epigynum.
5. *Cornicularia brevicornis*, side of head of male; 5*a*, tibial and tarsal hooks.
6. *Cornicularia minuta*, side of cephalothorax of male; 6*a*, front of head; 6*b*, top of head; 6*c*, male palpus; 6*d*, tibia and tarsus of male palpus.
7. *Cornicularia pallida*, side of head of male; 7*a*, tibia and tarsus of male palpus.
8. *Cornicularia tricornis*, top of head of male; 8*a*, side of head of male; 8*b*, tibia of male palpus.

PLATE XII.

1. *Lophocarenum castaneum*, cephalothorax of male; 1*a*, front of head of male; 1*b*, side of cephalothorax; 1*c*, male palpus; 1*d*, palpal organ; 1*e*, tibia of male palpus.
2. *Lophocarenum montanum*, side of cephalothorax of male; 2*a*, top of cephalothorax; 2*b*, front of head and palpi; 2*c*, front of head and mandibles of male; 2*d*, top of cephalothorax of female; 2*e*, front of head and mandibles of female; 2*f*, tibial hook; 2*g*, epigynum.
3. *Lophocarenum florens*, front of head of male; 3*a*, side of cephalothorax of male; 3*b*, top of head of female; 3*c*, side of head of female; 3*d*, 3*e*, male palpus; 3*f*, epigynum.
4. *Lophocarenum decemoculatum*, side of cephalothorax of male; 4*a*, front of head; 4*b*, tibia and tarsus of male palpus; 4*c*, palpal organ.

PLATE XIII.

1. *Lophocarenum spiniferum*, back of male; 1*a*, side of male; 1*b*, side of cephalothorax of female; 1*c*, back of cephalothorax of female; 1*d*, male palpus, showing inner side; at the top is the long stiff tube, below at the left, the tibial hook; 1*e*, male palpus, showing tarsal and tibial hooks; 1*f*, ventral side of epigynum; 1*g*, rear view of epigynum.
2. *Lophocarenum montiferum*, side of cephalothorax of male; 2*a*, top of cephalothorax of male; 2*b*, tibia of male palpus; 2*c*, 2*d*, cephalothorax of female; 2*e*, epigynum; 2*f*, palpal organ.
3. *Lophocarenum quadriristatum*, cephalothorax of male from above; 3*a*, head of male; 3*b*, side of head of male; 3*c*, tibia of male palpus; 3*d*, male palpus.
4. *Lophocarenum longitarsus*, back of cephalothorax of male; 4*a*, side of cephalothorax of male; 4*b*, mandibles of male; 4*c*, 4*d*, male palpus.
5. *Lophocarenum pallidum*, side of male; 5*a*, front of head; 5*b*, tibia and tarsal hook; 5*c*, tarsal hook from the side; 5*d*, palpal organ.
6. *Lophocarenum longitubus*, top of cephalothorax of male; 6*a*, side of cephalothorax of male; 6*b*, 6*c*, palpus of male.

PLATE XIV.

1. *Lophocarenum rostratum*, top of cephalothorax of male; 1*a*, side of cephalothorax of male; 1*b*, 1*c*, cephalothorax of female; 1*d*, tibia and tarsus of male palpus; 1*e*, palpal organ.

2. *Lophocarenum scopuliferum*, side of male; 2a, 2b, cephalothorax of female; 2c, male from above; 2d, 2e, 2f, male palpus.
3. *Lophocarenum erigonoides*, side of male; 3a, top of cephalothorax of male; 3b, palpal organ; 3c, tibia and tarsus of male palpus.
4. *Lophocarenum brevis*, top of cephalothorax of male; 4a, side of cephalothorax of male; 4b, tibia of male palpus; 4c, palpal organ.
5. *Lophocarenum simplex*, side of cephalothorax of male; 5a, top of cephalothorax of male; 5c, 5d, male palpus; 5e, tibia and tarsus of male palpus.
6. *Lophocarenum depressum*, side of cephalothorax of male; 6a, front of head; 6b, 6c, tibia of male palpus; 6d, palpal organ.
7. *Lophocarenum crenatum*, back of male; 7a, side of cephalothorax of male; 7b, palpal organ; 7c, tibia and tarsus of male palpus; 7d, epigynum; 7e, side of cephalothorax of female.
8. *Lophocarenum vernale*, side of cephalothorax of male; 8a, 8b, male palpus; 8c, epigynum; 8d, tibia of male palpus.

PLATE XV.

1. *Tmeticus probatus*, tibia and tarsus of male palpus; 1a, tibia, tarsal hook, and palpal organ; 1b, mandible of male; 1c, top of cephalothorax of female; 1d, epigynum.
2. *Tmeticus tridentatus*, side of cephalothorax of male; 2a, mandible of male; 2b, mandible of female; 2c, male palpus; 2d, tibia of male palpus from above; 2e, palpal organ; 2f, epigynum.
3. *Tmeticus plumosus*, male palpus, showing tarsal hook and feathered appendage of palpal organ; 3a, tibia and tarsus of male palpus; 3b, palpal organ.
4. *Tmeticus trilobatus*, mandible of male, 4a, mandible of female; 4b, epigynum; 4c, 4d, 4e, male palpus.
5. *Tmeticus contortus*, 5, 5a, male palpus.

PLATE XVI.

1. *Tmeticus longisetosus*, side of male; 1a, front of head and mandibles; 1b, tibia and tarsus of male palpus, at the left the tarsal hook with long bristles; 1c, 1d, male palpus.
2. *Tmeticus pertinens*, 2, 2a, male palpus.
3. *Tmeticus montanus*, male palpus, showing tarsal hook and palpal organ; 3a, tibia and tarsus of male palpus; 3b, male palpus.
4. *Tmeticus pallidus*, maxille and mandibles from below; 4a, male palpus from below; 4b, tibia of male palpus; 4c, epigynum.
5. *Tmeticus maximus*, male palpus.
6. *Tmeticus tibialis*, 6, 6a, male palpus.

PLATE XVII.

1. *Tmeticus bostoniensis*, male palpus. The shaded appendage just above the tibia is the tarsal hook.
2. *Tmeticus bidentatus*, male palpus, showing tibia and tarsal hook.
3. *Tmeticus concavus*, male palpus.
4. *Tmeticus microtarsus*, 4, 4a, male palpus.
5. *Tmeticus truncatus*, tibia and tarsus of male palpus; 5a, palpal organ.
6. *Tmeticus terrestris*, male palpus.
7. *Tmeticus brunneus*, male palpus.

8. *Erigone autumnalis*, side of cephalothorax of male; 8a, mandibles, maxillæ, and sternum of male; 8b, palpus of male; 8c, epigynum.

9. *Erigone longipalpis*, side of male; 9a, palpus of male, showing palpal organ; 9b, epigynum; 9c, mandible and maxilla of female; 9d, mandible and maxilla of male.

10. *Erigone longipalpis*, male of another variety; 10c, palpus of same; 10a, cephalothorax from above; 10a. palpus of another male from Danvers, Mass.

PLATE XVIII.

1. *Linyphia marginata*, dorsal markings of female $\times 8$; 1a, head of female from above; 1b, front of head and mandibles of female; 1c, top of head of male; 1d, front of head and mandibles of male; 1e, maxillæ of female; 1f, epigynum; 1g, male palpus; 1h, end of palpal organ, showing the tube τ , the large twisted appendage and two soft appendages; 1j, the tarsal hook.

2. *Linyphia communis*, dorsal markings of female $\times 8$; 2a, side of male; 2b, front of head and mandibles of male; 2c, front of head and mandibles of female; 2d, 2e, male palpus; 2f, epigynum.

3. *Linyphia clathrata*, markings of abdomen; 3a, front of head and mandibles of female; 3b, male palpus; 3c, largest appendage of palpal organ; 3d, epigynum.

PLATE XIX.

1. *Linyphia phrygiana*, dorsal markings of abdomen $\times 8$; 1a, head of male; 1b, head of female; 1c, mandible of female; 1d, mandible of male; 1e, male palpus; 1f, palpal organ; 1g, tarsal hook; 1h, epigynum.

2. *Linyphia mandibulata*, dorsal markings of female; 2a, front of mandibles of male; 2b, side of cephalothorax of male; 2c, epigynum; 2d, male palpus; H, the tarsal hook.

PLATE XX.

1. *Stemonyphantes trilineata*, dorsal markings of abdomen; 1a, mandible of female; 1b, 1c, male palpus; 1d, epigynum.

2. *Diplostyla nigrina*, dorsal markings of abdomen; 2a, male palpus; H, tarsal hook; τ , end of tube of the palpal organ; 2b, palpal organ; τ , the tube with soft appendages inside the coil; a, b, hard supporting appendages; H, the tarsal hook; 2c, epigynum from ventral side; c, c, openings; 2d, same from the side; a, outer, and b, inner soft appendages.

3. *Diplostyla concolor*, male palpus; τ , the tube; 3a, male palpus from the side; τ , the tube; H, tarsal hook; 3b, side of epigynum; a, b, soft appendages; 3c, epigynum from ventral side; a, outer soft appendage; c, c, openings.

PLATE XXI.

1. *Diplostyla canadensis*, male palpus.

2. *Dragnetisca socialis*, dorsal markings of abdomen $\times 8$; 2a, front of head, mandibles, and palpi of female; 2b, epigynum; 2c, base of tarsus, showing at the left a curved process, and at the right the tarsal hook H.

3. *Helophora pallescens*, male palpus; 3a, tibia and tarsal hook; 3b, epigynum.

4. *Buthyphantes minuta*, male palpus; H, the tarsal hook; x, roughened corner of tarsus; 4b, epigynum from ventral side; 4c, side of epigynum partly unfolded.

PLATE XXII.

1. *Bathyphantes nebulosa*, dorsal markings of abdomen $\times 8$; 1a, mandible; 1b, side of epigynum; 1c, ventral view of epigynum; 1d, male palpus.
2. *Bathyphantes zebra*, male palpus; 2a, epigynum.
3. *Bathyphantes sub-alpina*, male palpus.
4. *Bathyphantes alpina*, male palpus; y, long, split appendage of palpal organ; x, spine on patella; 4a, male palpus; H, tarsal hook; 4b, epigynum, outside; 4c, epigynum, inner side.
5. *Bathyphantes angulata*, male palpus.
6. *Bathyphantes micaria*, male palpus.
7. *Bathyphantes formica*, male palpus; 7a, palpal organ; 7b, femur of male palpus, showing teeth on both sides.

PLATE XXIII.

1. *Miconeta variata*, male palpus; T, the tube; H, tarsal hook; 1a, male palpus, from inner side; T, the tube; x, spur at base of tarsus; 1b, epigynum folded up.
2. *Miconeta cornupatpis*, male palpus; x, spur of the tarsus; H, tarsal hook; 2a, tarsus from above; 2b, epigynum.
3. *Miconeta persoluta*, tarsus of male palpus; x, spur; 3a, palpal organ; H, tarsal hook; x, bulb of the palpal organ; 3b, epigynum.
4. *Bathyphantes bihamata*, male palpus.
5. *Bathyphantes drassoides*, side of male; 5a, tibia and tarsus of male palpus; H, tarsal hook; 5b, palpal organ; T, base of the tube; H, tarsal hook.
6. *Gonatium rubens*, side of male cephalothorax, front leg. and palpus; 6a, male palpus; T, the tube; x, process of tibia; 6b, palpus seen from in front, in natural position; 6c, epigynum.

PLATE XXIV.

1. *Miconeta discolor*, side of cephalothorax of male; 1a, epigynum; 1b, male palpus.
2. *Miconeta quinquedentata*, male palpus, showing tarsal hook; 2a, palpal organ; 2b, epigynum.
3. *Miconeta crassimanus*, male palpus.
4. *Miconeta latidens*, male palpus.
5. *Miconeta furcata*, male palpus.
6. *Miconeta longibulbus*, male palpus; 6a, palpal organ.
7. *Miconeta olivacea*, male palpus.
8. *Bathyphantes complicata*, male palpus.

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